A

TREATISE

ON

HYDRENCEPHALUS,

OR

Dropsy of the Brain.

BY

JAMES CARMICHAEL SMYTH, M.D. F.R.S.

FELLOW OF THE ROYAL COLLEGE
OF PHYSICIANS,
AND PHYSICIAN EXTRAORDINARY TO HIS MAJESTY,
&c. &c. &c.

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To the Memory of

THE LATE MOST EXCELLENT AND ACCOMPLISHED

GEORGE EARL OF DARTMOUTH, K. G.

&c. &c. &c.

WHOSE NOBLE AND MANLY COUNTENANCE

WAS SO EXPRESSIVE OF THE

GOODNESS AND BENEVOLENCE OF HIS HEART,

THAT TO SEE HIM, AND TO LOVE HIM, WAS THE SAME;

BUT, TO DO JUSTICE TO HIS CHARACTER,

WOULD REQUIRE

THE IMMORTAL PEN OF TACITUS HIMSELF.

ALSO TO THE

COUNTESS OF DARTMOUTH,

WHOM, A SUPERIOR MIND, AND AMIABLE MANNERS,

RENDERED AN APPROPRIATE CONSORT FOR

SUCH A HUSBAND.

THE FOLLOWING PAGES ARE HUMBLY INSCRIBED,

AS A SINCERE TRIBUTE OF GRATITUDE,

AND WITH SENTIMENTS

OF ATTACHMENT, ADMIRATION AND REGRET,*

THAT NEVER CAN CEASE BUT WITH

THE AUTHOR.

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* Finis vitæ ejus nobis luctuosus, amicis tristis, extraneis etiam ignotisque, non sine cura fuit. *Tacil. Vit. Agricolæ.*

633577

ERRATA.

Page 9—*for* bye and bye, *read*, by and bye.
44—last line, actions *omitted.*
51—*for* antagonst, *read*, antagonist.
59—Note, *for* Impyh, *read*, lymph.
75—*for* epidermus, *read*, epidermis.
77—*for* gumboge, *read*, gamboge.
96—*for* turged, *read*, turgid.

PREFACE.

THE following Treatise on the Hydrencephalus,* or Dropsy of the Brain, was written upwards of twenty years ago, at the request of the late EARL OF DARTMOUTH, whose desire was to me a command, and a command I was proud to obey, though sensible that his Lordship's partiality and friendship, greatly over-rated my talents and ability to execute the task.

It has been revised at different times, and considerable alterations and additions have been made; as moments of leisure occurred, or opportunities of improvement presented themselves. It was always however my wish not to publish any thing on a subject, upon which I knew there was such difference of opinion, so long as I continued in the exercise of my profession, as fresh instances of the disease would probably come under my notice, that might enable me to confirm the truth of the observations I had made, or correct the errors into which I possibly had fallen.

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* The reader will observe that I have made a slight change in the Greek name of the disease—That of Hydrocephalus only expressing Dropsy of the Head; whereas Hydrencephalus expresses what it really is—Dropsy of the Brain. To the Greek scholar the difference is obvious; to others it is of no consequence.

Eleven years have now elapsed, since the state of my health obliged me to relinquish all public employment; but some unforeseen and unfortunate events have prevented me from profiting of my retirement, or engaging in pursuits the most agreeable to my inclinations, and the most conformable to my habits of life. This circumstance I only notice, as an apology for the late appearance of the present publication, supposing it to be one from which the Public are likely to derive any advantage, however inconsiderable.

I am aware also, that some apology is due, for my being unacquainted with the late publications on the subject; for it is only within these few weeks, that the bookseller to whom I had transmitted my manuscript, sent me an Essay on the *Hydrocephalus acutus*, published by a Dr. Cheyne of Edinburgh, in the year 1808, which I read with much attention; having determined in my own mind, if I found my observations on the Disease anticipated, or that the author's opinions coincided with mine, to commit my manuscript to the flames. But, though pleased to observe an agreement on some points, I was not a little mortified to find his ideas, and (to judge from his quotations) those of all the late writers on the subject, directly opposite to mine, both in respect to the nature of the complaint, and likewise the proper mode of treating it.

I immediately resolved to hazard the present publication, from which I can expect no reward, excepting the satisfaction of having contributed, so far as in my power, to the improvement of a Profession that has been the chief object of my life. If attended with no other advantage, it will at least (as contrariety of opinion always does) lead to a farther and more accurate investigation of the subject, and time at last, *qui opinionum commenta delet,* will, I trust, establish the truth.

In respect to my observations, I shall only say, that they are the result of upwards of thirty years experience, and were drawn up from more than forty instances of the disease. For the truth of them I hold myself responsible; of my opinions, and the justness or accuracy of the reasoning upon which these are founded, every reader will judge for himself.

On Dr. Cheyne's Essay it is with extreme reluctance I make any comment. To criticise the works of another is always an unpleasant, and commonly considered an invidious task; but in the present instance, where there is such opposition of sentiment, there is no choice left. A false delicacy on a subject where the best interests of humanity are concerned, would be a species of treason to the public, and a dereliction of public duty. But I flatter myself this gentleman has liberality enough to perceive, that it is not the man, but his doctrines, I oppose.

Dr. Cheyne begins by informing us, that the object of his Essay is to illustrate still farther the Hydrocephalus, or Dropsy of the Brain; but in the course of the work *currente rota* instead of illustrating the disease, he attempts to prove that no such disease exists. For if the effusion of a watery fluid into the ventricles of the brain, is not the original disease, and cause of the symptoms, but an accidental occurrence, the consequence of some other morbid affection of the brain; and, if even when it does take place, it does not occasion any symptoms or interruption to the functions of life, it cannot be reckoned a disease, wanting the essential character of such. The name therefore of Hydrocephalus should in future be erased from every system of Nosology.

On his description of the disease I shall at present make no remark, only to declare my dissent from his opinion, that the fulness of the description supersedes the necessity of a diagnosis. Whereas it appears to me, that the more full and complete the history, the greater the necessity of some accurate distinction; for, where a full and complete relation of the symptoms is given, it must include some that are only casual, and many that are in common to the disease with others, which renders the means of distinguishing it more difficult, at the same time more necessary.

But the truth is, that were his opinion of the nature of the disease correct, no diagnosis could possibly be established; for how can it be known that water is effused into the ventricles of the brain, if the most unequivocal or certain symptoms marking this event, can take place when not a drop of water is present; or how, it may be asked, can any morbid change in the body be known, unless by our senses, or by the symptoms which it occasions: but in the present case, the morbid alteration being in the centre of the brain, cannot be an object of sense;

and, if it causes no symptoms, there can be no means of distinguishing it: well might Physic be called a conjectural art, were such doctrines generally established.

The numerous and contradictory opinions entertained by medical writers and medical professors, of the nature of Hydrocephalus, must surprise the reader, as I own they surprised me, now a physician of nearly half a century's standing.

By one it is considered as an apoplexy; by another an inflammation of the brain or phrenitis; by a third, as a slighter inflammation, to which he gives the diminutive epithet of phrenicula; a fourth looks upon it as a nervous fever; and a fifth, as a slight species of typhus, or contagious one. Whilst Dr. Cheyne, to whom I am indebted for most of the above information, supposes the disease to consist in a morbid action, of which no explanation can be given. What triumph does such discordant opinions afford the empyrical physicians? What force does it give to their arguments? How much does it shew the justness of their conclusions? The reader, I am persuaded, will feel himself obliged to me for presenting him with a specimen of their mode of reasoning, conveyed in the elegant and classical language of Celsus.

The passage I allude to is the following:—

" Contra ii, qui se ἐμπειρικοὺς ab experientia
" nominant, evidentes quidem causas, ut neces-
" sarias, amplectuntur: obscurarum vero causa-
" rum et naturalium actionum quaestionem ideo
" supervacuam esse contendunt, quoniam non
" comprehensibilis natura sit. Non posse vero
" comprehendi, patere ex eorum que de his dis-
" putarunt, discordia: cum de ista re, neque
" inter sapientiae professores, neque inter ipsos
" medicos conveniat. Cur enim potius aliquis
" Hippocrati credat, quam Herophilo? cur huic
" potius, quam Asclepiadi? Si rationes sequi
" velit, omnium posse videri non improbabiles;
" si curationes, ab omnibus his ægros perductos
" esse ad sanitatem: ita neque disputationi,

" neque auctoritati cujusquam fidem derogari
" oportuisse. Etiam sapientiae studiosos maxi-
" mos medicos esse, si ratiocinatio hoc faceret:
" nunc illis verba superesse, deesse medendi
" scientiam," &c.—Vid. Celsi, lib. i.

But to return to my subject.

It is not my intention at present to examine the various opinions entertained of the nature of Hydrocephalus, having neither time nor inclination for such research; I shall leave them to stand or fall by their own merit. It is Dr. Cheyne's opinion only that I mean to consider, of which he himself has given the following account.

" Hydrocephalus appears to me to consist in
" a diseased action of a particular kind; what
" this action is, we can as little explain as we
" can the nature of the scrophulous or syphilitic
" action."

The preceding explanation, I must confess, conveys to me no precise or distinct idea either of the nature of the disease, or of the meaning of the author.

A general diseased action is what I do not comprehend, and therefore must suppose that the author means to express some particular or specific morbid action, either of the brain itself, or of its blood vessels.

My objection to the first is, that we are as yet too little acquainted with the functions and natural actions of the brain, to form any opinion of its morbid ones, still less to assume these as a cause of disease.

If on the other hand he means to say, that the disease consists in any morbid action, or excitement of the arteries of the brain, my first objection to this is, that neither the symptoms of the disease, nor the appearances after death, afford any evidence to justify the idea of such excitement; but a second objection no less forcible is, that granting such excitement to take place, I affirm, without fear of contradiction, that an arterial excitement in any part of the body, when unaccompanied by inflammation, is neither in itself a disease, nor productive of any morbid consequence. I must therefore look upon the opinion, that the Dropsy of the Brain consists in a diseased action, either general or local, as a pure hypothesis, and one which has not even the merit of explaining the phenomena upon any sound principles of physiology or pathology with which I am acquainted.

But enough on this subject; yet, before concluding, I shall take the liberty to make one remark more on that part of his practice which relates to general bleeding.

When we find those authors who consider the Dropsy of the Brain as an inflammatory disease, recommending general bleeding, or a liberal use of the lancet; whether we approve or disapprove of their practice, we must at least allow that it is consistent with their theory or opinion of the disease. But it is with some surprise that I observe Dr. Cheyne, whilst he combats their doctrines, recommending their practice; for I cannot admit a difference in degree to be a difference in principle. "General bleeding (says "Dr. Cheyne) is not only proper in many cases "in the beginning, but on some occasions "adviseable even in the second stage, or at any "time before the convulsions come on."

The last caution seems perfectly unnecessary, as at this period, the fate of the unhappy sufferer is decided, and all modes of practice are equally unavailing and equally indifferent.

The practice of general bleeding, the debilitating effect of which, particularly to children, is well known, seems to me to accord very ill with the account given by Dr. Cheyne of the subjects and predispositions to this disease.

"It ought to be recollected (says he) that "Hydrocephalus scarcely ever affects the adult, "and phrensy as seldom occurs in childhood; "they are diseases of different conditions of the "brain, the nascent and the adult state of the "organ."—Again; "Although Hydrocephalus "often appears in children who were previously "healthy; yet, as I have already remarked, it is "in strumous constitutions, such as are but little "susceptible of phlegmonic inflammation, that "we meet with most frequent instances of the "disease. It often too succeeds imperfect re- "covery from fevers, particularly of the eruptive "kind, and attends the debility which follows "many infantine diseases."

One would hardly suppose that the author of the above observations (the truth of which my experience fully confirms) would be an advocate for bleeding, or for any practice by which weakness could be encreased. For my own part, I have never seen a case that seemed to require it, nor have I ever yet met with a physician who advised it.

The celebrated Whytt, who (I speak from personal knowledge) was no enemy to the lancet, observes that in the fever accompanying the first stage of the Hydrocephalus, though the pulse is often extremely frequent, it is rarely ever so full as to indicate bleeding; and it does not appear that he employed this even as a means of relief, still less as a remedy for the disease.

On the other parts of Dr. Cheyne's practice I shall at present make no observations, although I may perhaps have occasion to take some further notice of them, when I come to this part of my subject.

I shall now proceed to lay before the public my own observations and opinions on this disease, after which they will be better able to judge what system to embrace, or what treatment to pursue.

INTRODUCTION.

As, in the acquirement of all physical knowledge, it is only from observation and experience that we arrive, in the way of induction, at any general rules or laws of Nature: Physicians, convinced of this truth, have very properly laid the foundation of their art in the accurate observation of particular instances of disease; which they afterwards endeavour to reduce into species, genera, or classes, from the circumstances of affinity or resemblance observable amongst them; and by proceeding in this way, so long as they avoid all forced and unnatural arrangements, they have a chance of improving their profession, and of rescuing it from the speculations of the idle Theorist, on the one hand, and from the practice of the blind Empyric, on the other.

In compliance with a custom now so generally established, it is my intention, before I attempt to give the history, or examine more particularly the peculiar character of that Dropsy, which is my principle and ultimate object: to enquire into the nature, causes, and symptoms of this disease, under all the variety of forms hitherto noticed. By adopting this mode of proceeding, I shall avoid much unnecessary repetition, and enable the reader to form his own judgment, how far the Dropsy, the subject of our present investigation, partakes of the general character of the class, and what circmstances constitute its specific difference.

The word Dropsy, anciently Hydropisy, is of Greek origin, and signifies, according to the Etymology of that language, a Disease of Water. The propriety of the name is sufficiently obvious, when we consider that the effusion of a watery fluid is the prominent feature of the disease. Of which the following definition may be given. Dropsy is a morbid accumulation of a watery transparent fluid, in some part of the body; impeding or preventing the functions of life.

The epithet morbid is necessary to distinguish this disease from the natural accumulation of fluids that takes place in living animals; whilst the qualifications of watery and transparent distinguish the dropsical fluid from other morbid effusions caused by inflammation or hæmorrhagy; and that the fluid should be in sufficient quantity to disturb or interrupt the functions of life, is a circumstance requisite to constitute disease.

Having shewn what is meant by Dropsy, I should next proceed to enumerate and explain the causes which give rise to it. But, before I can do this in a clear and satisfactory manner, some previous anatomical or physiological knowledge is required on the part of the reader; and as all those, into whose hands this treatise may fall, may not possess this necessary information, for the benefit of such I shall endeavour briefly to state, a few facts as the foundation (or data) upon which the whole of our reasoning and conclusions on this subject are founded, and without the knowledge of which it is impossible for any one to comprehend them.

It is well known to anatomists that the different parts of animal bodies are connected by a spungy cellular substance, more or less compact. That by means of this, the skin is attached to the muscles or flesh, and the various bundles of muscular fibres to each other.

That, to preserve this in a moist and pliable state, fit for the various motions of the body, a vapour, or halitus, is constantly poured out from the extremities of small arteries, and the superabundant fluid as constantly taken up and carried back to the circulating mass of blood, by a series of corresponding veins; which, from their particular functions, are named absorbents.

That a balance in this, as in every part of the animal œconomy, is necessary, will hardly be called in question.

It must be evident to every one, that if too small a quantity of fluid be supplied, a dryness incompatible with the ease and freedom of motion must follow. On the other hand, if a greater quantity be poured out than what the absorbent veins can take up, an unnatural or morbid accumulation must be the consequence.

I must farther remark, that the same œconomy takes place on the smooth surface of contiguous membranes, such as those which line (what are commonly, though improperly called) the cavities of the body, with their reduplicatures, constituting the outer coverings or involucra of the contained viscera. The surfaces of which membranes, though constantly in close contact, are by means of this effusion, prevented from forming adhesions, and a freedom of motion is preserved.

The membranes covering the brain, called dura and pia mater, the still finer .membranes lining its ventricles, the pleura and surface of the lungs, the pericardium and heart, the peritoneum and abdominal viscera, with several others, are all of this description, and consequently are all of them liable to a preternatural accumulation of the fluid which moistens their surface.

But as this morbid accumulation causes very different symptoms, according to the office or function of the part affected, there are as many dropsies as parts, and each local dropsy being considered as a specific disease, has an appropriate name given to it.

Having prefaced these few simple physiological facts, I shall now give an account, and, so far as I can, endeavour to explain the causes of this disease, confining, however, my remarks to such causes only, whose existence and power to produce the effect, have been fully established by experiment, or from observation.

There are but two causes of dropsy, whose efficacy has been ascertained in the way abovementioned.

The first is any obstruction or impediment to the return of venous blood to the heart. The second is debility or weakness, either general or partial, more especially the *debilitas febrilis*, or weakness the immediate or more remote consequence of fever.

The power of the first in causing dropsy is established both by experiment and observation. The efficacy of the second is ascertained from observation alone.

From the well known experiments of Lower it appears, that a dropsy, or effusion of a fluid into the abdomen of a dog, was occasioned in a few hours by a ligature made on the vena portarum; and that a dropsy in the cellular membrane of the neck and throat, as constantly followed the tying of the jugular veins of that animal—and these experiments of Lower's, made on dogs, are confirmed by experiments made on the human body. Thus, a tight bandage or ligature on any limb induces quickly an œdematous or dropsical swelling of the part. And the legs of women, during the last period of pregnancy are often observed to swell, from the pressure of the gravid uterus on the iliac veins. The same thing happens to persons long confined in a carriage; merely from the weight of the column of blood returning by the crural veins, when deprived of the action of the muscles to push it on towards the heart.

But, independent of the preceding experiments and observations, this cause of dropsy is fully established from the history of the disease itself, and the examination of morbid bodies.

The venous blood returning from all the abdominal viscera terminates in one vein, called the vena portarum, which, when it enters the liver, assumes the functions of an artery, distributing the blood by means of its numerous ramifications through this viscus.

Now as any obstruction to the free circulation of the blood through the branches of the vena portarum, must cause an interruption to the blood returning from the whole viscera of the abdomen, it should necessarily bring on an ascitis or dropsy in that cavity; and the records of physic shew that this is the usual consequence of such obstruction: for in the greater number of dropsies of the abdomen, the liver is found in a diseased state, and in such cases the dropsy is evidently the consequence of the morbid state of the liver; for unless this last can be removed, the first may be considered as incurable. Besides, there are few instances of the liver being considerably obstructed or diseased, without an ascitis sooner or later making its appearance.

I am far, however, from asserting that there are not cases of ascitis, where there is no disease, nor morbid organization of the liver; having met with examples of this both in young and old. This fact, however, though admitted, only shews that dropsy is sometimes occasioned by other causes besides the one under consideration. I must also acknowledge (what I have repeatedly seen) that the liver is sometimes greatly diseased, without any ascitis accompanying it. But a few negative facts cannot invalidate the evidence arising from general observation, and which would admit possibly of explanation, were we sufficiently acquainted with all the circumstances of the case.

The aberration of many of the planets, and the rising of the tide on the opposite meridian, were long considered as objections to Sir Isaac Newton's philosophy; although the last admits of a most rational solution from his doctrine, and the first, from later observations, and a more accurate analysis, has proved the strongest confirmation of his immortal system.

We conclude then, that an obstruction to the return of venous blood to the heart is ascertained to be a cause of dropsy by every kind of evidence of which a matter of fact is susceptible.

What I stated as the second cause of dropsy, viz. debility or weakness, does not admit, like the first, of any proof from experiment; and therefore its existence, as a cause of this disease, must rest entirely on the number and accuracy of our observations. I shall therefore enumerate these, and see what degree of evidence they afford.

In the first place we may remark, that Dropsy occurs more frequently during infancy and old age (two stages of weakness), than at any other period of human life.

2dly.—Dropsy frequently accompanies the chlorosis, (a state of extreme weakness in young females), also, what is called, the breaking up of the constitution, or, in other words, premature old age, whether brought on by disease, intemperance, or excesses of various kinds.

3dly.—Dropsy is a symptom, commonly accompanying the termination or close of most chronical disorders.

4thly.—Dropsy is sometimes a consequence of profuse evacuations, particularly of the loss of blood.

5thly.—Dropsy very frequently supervenes fevers, especially tedious or imperfectly cured intermittents; the scarlatina anginosa; and the jail or hospital fever; all of them remarkable not only for the weakness accompanying them, but also for the great weakness that remains when the symptoms of fever are gone.

6thly.—Dropsy is not an unfrequent attendant on gout, especially on what is called the attonic, or irregular gout; which often induces as great and sudden debility as any contagious fever. When this state of the body is accompanied by a cough, symptoms of hydrothorax, or dropsy of the chest, with anasarcous swellings of the legs, are the almost certain consequence.

Whoever reflects on the preceding circumstances with attention, will have little doubt that weakness, either directly or indirectly, is a frequent cause of dropsy; and, although this source of the disease, does not, like the first, admit of any proof from experiment, yet the number of observations, supplied by the history of the disease itself, affords an evidence, little inferior in degree of certainty.

Having finished the remarks I had to make on the causes of dropsy, I shall next point out the distinctions of this disease: the most important of which are the anasarca, or dropsy of the cellular membrane, and the encysted dropsy, or that of the different cavities.

The first, when external, is easily known by a pale, or colourless indolent swelling of the part, retaining the impression of the finger. It is sometimes general, when the whole body is swelled; but commonly only partial, and when partial, the legs are the part usually affected.

Of the encysted dropsies, the Ascitis, or dropsy of the abdomen, is the most frequent, and most readily distinguished; it may commonly be known at first sight; if not, it is easily ascertained by examination.

As most of the other dropsies are only known by the symptoms which they occasion, they cannot be distinguished with equal facility. They require, therefore, more experience and judgment on the part of the physician; and there can be little doubt, that he will be most successful in curing the disease, who shews the greatest sagacity in discovering it.

The fluid effused in every kind of dropsy, agrees in the qualities which I at first stated, of being a transparent water; although, in other respects, it is found to differ materially in different dropsies, and even in the same kind of dropsy in different subjects.

In some encysted dropsies, the fluid, though transparent, is of a yellowish green colour, and coagulates at the heat of boiling water, and from an admixture with the mineral acids. In others, the fluid is colourless, resembling the purest water, and neither coagulates by heat nor acids.

The symptoms of dropsy, considered as a class, or genus, are but few. For, as most of the symptoms depend upon the functions of the part affected by the disease, they are symptoms of the species, not of the genus.

There are, however, some symptoms which may be mentioned as general, being present in most cases of this disease.

Dropsies of every description are commonly accompanied by languor and debility, with a certain degree of restlessness and anxiety, dryness and clamminess of the mouth, thirst, dryness and unnatural appearance of the skin and hair, with a high coloured urine, made in small quantity, and depositing a brick-dust sediment.

The foregoing being all the general observations necessary to be made on dropsy, as a genus, or class of disease, I shall now proceed to examine that particular species of dropsy which is the immediate subject of our present enquiry.

OF THE
Hydrencephalus,
OR
DROPSY OF THE BRAIN.

OF THE

HYDRENCEPHALUS,

OR

DROPSY OF THE BRAIN.

THE Hydrencephalus is a species of encysted dropsy, where the fluid is lodged in the very centre of the brain, immediately under the corpus callosum; occupying chiefly what are named the lateral ventricles.

Whether this form of disease was at all known to Hippocrates *, or to any of the antient Greek

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* Hippocrates knew and has described the dropsy upon the brain the ὕδωρ ἐπὶ τῷ ἐγκεφάλω; but it does not appear in any of his works that he had any knowledge of the dropsy of the brain.

or Roman physicians, is a question of little consequence at present to determine. Amongst the moderns, it was first noticed by Monsieur Petit, and described, though very imperfectly, by him in the Memoirs of the Academy of Sciences.

But we are indebted to the celebrated Dr. Whytt of Edinburgh, for the first accurate description of the symptoms, and rational explanation of the nature of this fatal distemper.

Since his publication, some further remarks have been made on the subject by the late Dr. Fothergil, who, for many years held a distinguished rank in his profession, and by several others of less celebrity. None of these gentlemen, however, have made any important addition to Dr. Whytt's account of the disease, nor have they improved, in the smallest degree, the part in which he seems most deficient, viz. the diagnosis, or method of distinguishing it from every other.

But, to do justice to the merit of Dr. Whytt, at the same time to prevent unnecessary repetition, it appears to me the most advisable plan, to give, in the first place, his description of the disease, and to subjoin my own observations, or those of others, as a comment to his text; stating, candidly, where I differ from him in opinion, or where my observations do not exactly coincide with his: and (what I have principally in view) directing the public attention to those symptoms, or rather, that combination of symptoms, which in my opinion distinguish this disease so exactly, as to leave no excuse in future for ignorance or inattention.

But, before I enter upon the description of the Hydrencephalus, I shall take the liberty to notice certain distinctions or varieties of this complaint; to some of which, neither the description given by Dr. Whytt, nor any remarks of mine, are at all applicable.

The first of these, is the distinction of acute and chronic.

In the acute, as the size of the head is not in the least altered, the disease can only be distinguished by its appropriate symptoms, which are always more or less violent, consequently it is of short duration, terminating commonly in a few weeks.

In the chronic Hydrencephalus, the head is always of an unnatural size, often of an enormous one; it is never accompanied by fever or any acute symptom, and therefore is of long duration, as the name implies—sometimes it continues as many years as the other does weeks.

Some children are born with the chronic Hydrencephalus, or at least it appears at a very early period of life, whilst the ossification of the skull is still incompleat, or the various bones of which it is composed are imperfectly united: under those circumstances, the brain with its membranes gradually yield to the distending force of the accumulated fluid, till at last it loses its original form, and apparently its organized structure; for in some instances, when examined after death, it seemed little else than a sack or bag containing a watery fluid; and yet, in that state (what is almost incredible) the patients were observed to retain their senses almost to the last, and still to possess some of the faculties or powers of mind. These facts furnish a subject of curious speculation to the Physiologist, although they are little interesting to the practical physician: to discriminate such cases, requiring no professional skill nor ingenuity; and to cure them, being out of the reach of art.

Besides the acute and chronic Hydrencephalus, instances of this disease are sometimes to be met with of a mixt kind, partaking of the nature or character both of the chronic and acute; this happens when the sutures of the skull, though closed, are imperfectly so, and give way, if not immediately, at least in a short time, to the internal distention.

Cases of this kind I have met with, and when they do occur, there is some apparent difference, as may be supposed, in the symptoms. The disease, however, from what I have seen, even under such circumstances, partakes more of the acute than the chronic, and the head never acquires the prodigious size of the latter. The symptoms likewise are more acute, and the termination more rapid.

Another distinction of Hydrencephalus, highly deserving our attention, though hitherto, I believe, unnoticed, is that of the original or primary, and the symptomatic or secondary.

Whoever has read with attention what has been mentioned in the Introduction on the subject of general Dropsy, must be satisfied of the reality and importance of the above distinction: and though convinced that dropsies are commonly secondary, or symptomatic diseases, arising from some morbid organization, or the consequence of febrile debility; yet he must allow, that there are many instances of dropsy where the disease is evidently original, or at least is to be considered as such by us, when no previous indisposition can be traced, nor morbid structure discovered.

Very great mistakes, both in respect to the duration, as well as the symptoms of Hydrencephalus, have originated from physicians overlooking this obvious distinction. The symptoms of some previous indisposition, have been confounded or assimilated with those peculiar to the real disease, which has been supposed to have commenced for weeks, or even months, before it was actually in existence. Nay, such is the confusion of facts and ideas, to which this want of accuracy has given rise, that many physicians, finding no criterion to distinguish between the symptoms of water in the brain, and those of other casual irritations, which sometimes terminate in this disease; adopted an opinion that there was no original Hydrencephalus, but that the disease was always secondary or symptomatic; although an accurate acquaintance with the characteristic symptoms of the genuine, or original Hydrencephalus, is alone sufficient to refute such idea.

But as the necessity, or even the propriety of the above distinction, may not be equally obvious to every one, I shall endeavour to give some further illustration of this subject, and point out those instances of disease where Hydrencephalus appears as a secondary complaint.

By the expression of original or primary Hydrencephalus, I wish to convey an idea of the disease in its simplest state, when not immediately accompanied, or ushered in by any other, and when the febrile, and other symptoms that usually accompany the complaint in the beginning, cannot be imputed to any other cause, but to the direct operation of the fluid effused into the ventricles of the brain.

The secondary, or symptomatic Hydrencephalus, on the other hand, is always preceded by some other disease, of which it appears to be an immediate consequence, and whose symptoms have so strong a resemblance or analogy, as frequently to impose upon persons unacquainted with the complaint, or unaccustomed to accurate discrimination: and when the real Hydrencephalus, or watery effusion takes place, the symptoms of both diseases are so blended together, as to occasion much ambiguity and confusion; owing to which, many symptoms have been described as appropriate to Hydrencephalus, that have no dependance, or connection whatever with this disease.

The anomalous symptoms, having a resemblance to those of Hydrencephalus, caused by teeth or worms; I shall have occasion to notice, bye and bye, and shall endeavour to point out the means of distinguishing them. But it may be proper in this place to remark, that although the irregular fever, loss of appetite, strength, &c. usual in such cases, may, in the end, like all other debilitating causes, prove a predisposition to Hydrencephalus, I have never yet seen the disease directly brought on by them.

There are only two diseases, in the course of which I have observed the Hydrencephalus to make its appearance, and where it may justly be reckoned secondary or symptomatic.

These are, The intestinal remitting fever of children, and, The scarlet fever or scarlatina anginosa.

The first is a disease too well known to require any particular description, although it may be useful to mention, that it commonly arises from what is called foul bowels, a name to which even those who employ it, have, I believe, annexed no very distinct idea. They know however that it requires purging; a practice on many occasions carried too far.

Foul bowels appear to me to consist in a diseased secretion of mucus from the villous, or interior coat of the intestines, accompanied generally, if not always, with a morbid alteration in the bile, or with an obstruction to the free passage of this into the bowels. The complaint is soon known by the irregularity in the state of the body, and by the appearance of the evacuations by stool. The body is sometimes loose, sometimes bound, never natural; the evacuations are in some cases waxy and clay coloured, in others chiefly mucus or slime mixed with bile of various colours, though most commonly green; on other occasions they consist of a curdled matter, or are mixed with shreads or flakes; always extremely fœtid.

These morbid changes are soon followed, in the delicate and irritable habit of a child, by a variety of symptoms, more or less acute and alarming: such as vomiting, purging, or straining with small slimy stools, fulness of the abdomen, with pain and tenderness of the præcordia, drowsiness, restlessness, convulsions, and fever. These symptoms however do not follow in any regular succession, but depend entirely upon the age and constitution of the child, with the different circumstances, or combination of circumstances, in the causes exciting them. But in all cases where proper assistance is not immediately procured, the convulsions, or sometimes the fever proves suddenly fatal; and even when the first danger is avoided, if the disease is not removed, other consequences follow, which in the end are no less certainly destructive to life. The disorder in the bowels inducing peritoneal inflammation, and sometimes (owing to spasm or intosusceptio) a fatal ileus.

The intestinal fever I have, in some instances, seen attended by violent head-ach, falsely supposed to arise from Hydrencephalus; an opinion however, rendered probable from the drowsiness and enlargement of the pupils generally present. On other occasions I have known the tongue acquire an unnatural redness, followed by the appearance of thrush or aphthæ in the mouth and fauces; and the disease at last terminate in Hydrencephalus, convulsions, and death. Where this does not take place, the tongue becomes dry, and of a dark brown colour, with deep chops, the patient falls into a state of actual coma, or low muttering delirium, the pulse sinks, with other appearances usual towards the fatal termination of fevers of the putrid class.

The Scarlet fever or scarlatina anginosa is another disease, in the course of which I have had occasion to observe Hydrencephalus suddenly induced.

Every practitioner in extensive employment, and who has had frequent opportunities of attending patients in this disease, must have remarked, that during recovery, or while children are apparently in a state of convalescence, they remain long weak, with a quick pulse, thirst, and loss of appetite; and in this state, sometimes swell suddenly, or are seized with general dropsy, terminating on some occasions, as I have witnessed, in Hydrencephalus. The dropsy, when taken in the commencement, and properly treated, is in general easily removed; but when neglected, or where it is followed by Hydrencephalus, it has usually proved fatal—the patient is seized with convulsions, and suddenly carried off.

But enough has been said on this head, to explain the importance of the distinction between the primary and secondary Hydrencephalus, and to put physicians on their guard, to watch the first approaches of the disease.

DR. WHYTT's DESCRIPTION

OF THE

Dropsy of the Brain.

An Account of the Symptoms in the DROPSY of the VENTRICLES of the BRAIN.

FIRST STAGE.

CHILDREN who have water in the ventricles of the brain, begin to have many of the following symptoms, four, five, or six weeks, and in some cases much longer, before their death. At first they lose their appetite and spirits; they look pale, and fall away in flesh; they have always a quick pulse, and some degree of fever. In some cases, I have seen a Hydrocephalus attended with a considerable degree of fever, which had frequent remissions, but without any order or regularity: in other cases, the paroxysms came on pretty regularly in the evening, and then the disease was taken for a slow irregular nervous fever, or for one occasioned by worms. At this time, in children of five years and upwards, I have found the pulse at 110, in others at 120, and in a few cases at 130, or even at 140 strokes in a minute; but rarely ever so full as to indicate bleeding.

In others the quickness of the pulse and heat of the skin were not so considerable; but, I do not remember to have seen any patient who had not some degree of fever in this, which I call the first stage of the disease.

While the feverishness continues or increases, they lose their appetite more and more, their tongue is often white, sometimes it is remarkably clean, and towards the end of the disease acquires an apthous redness. They are thirsty, and frequently vomit once or twice in a day, or once in two days. They complain of a pain in the crown of their head, or in the forehead above their eyes. They are commonly costive, though sometimes they have returns of a looseness. When bound, they are not easily moved by a purge; sometimes they are troubled with gripes. Their spirits being low, they incline mostly to lie in bed, although they are often more disposed to watching than to sleep. They cannot easily bear the light, and complain when a candle is brought before their eyes. They are observed to pick their nose, and in their sleep to grind with their teeth, as in the case of worms.

These are the symptoms of the first stage; during which, it is very hard to distinguish this Dropsy of the Brain from a slow irregular fever occasioned by worms, by some other disorder in the bowels, or by some other cause.

In the second stage, the symptoms enable us, with some certainty, to discover the nature of the ailment. But, before I proceed to enumerate them, I shall just observe, that I never had but two patients who had not the vomiting during either the first or second stage. One of these was a girl of eight years of age, who, though she had an aversion to food, yet never threw it up but once, and that was on the third day before her death; nor did she ever complain of a head-ach till twelve or fourteen days before she died; whereas, this last symptom, for the most part, begins three or four weeks, and in some cases several months, before the end of the disease: she also could bear the light better than any I have seen. The other, who had no vomiting, was a boy of eleven years; he had little head-ach, although he lay much in bed, and did not like to be moved. But, in general, the vomiting once or twice a day, or once in two or three days, the head-ach, and the aversion to light, are the symptoms which, in the first stage of this kind of Hydrocephalus, characterise it most.

SYMPTOMS OF THE SECOND STAGE.

I date the beginning of the second stage from the time the pulse, from being quick but regular, becomes slow and irregular. This sometimes happens about three weeks, often a fortnight, or less, before the death of the patient. In this stage, the pulse is commonly not only much slower than it was before, but often more so than in health. In a girl of thirteen, the pulse, which for a fortnight beat above 100 times in a minute, about nine days before she died fell to 84; next day to 70, and the day after to 60, becoming always more irregular the slower it was. In a youth of sixteen, the pulse, which for several weeks had been feverish, on the fifteenth day before his death beat only 68 in a minute; two days after, it fell under 60, and once to 50.

A boy, nine years of age, fifteen days before he died, had a pulse from 70 to 75 in a minute, and irregular. In another of four years, the pulse fell to 88 on the ninth day before his end. In a girl of seven years old, on the fifteenth or sixteenth day before her death, the pulse beat 150 times in a minute; next day, it became slower than natural, and irregular; for five or six days after this, it was from 80 to 86 in a minute. In two other children, who were less feverish in this stage, the pulse from 100 fell below 80.

I have never seen a patient with water in the ventricles of the brain, whose pulse did not come down to its natural state, or very near it, except one. This was a girl of about seven, whose pulse, after being for several weeks about 130 in the forenoon, and 140 in the evening, a fortnight before her death fell 2 or 3 strokes under 100; yet, neither her heat, nor thirst, nor other complaints abated, although her pulse had fallen above 30 in a minute.

In this distemper it is observable, that when the pulse is nearly as slow or slower than natural, it is always irregular or unequal, both as to the strength and the interval of the strokes. When it grows quicker, the irregularity lessens; and when it becomes very quick, it is then most equal and regular. Farther, it deserves notice that, although in the second stage the pulse becomes much slower than it was before, the heat of the skin continues much the same, and sometimes seems rather to increase. I have insisted the longer on the state of the pulse in this period, as from thence we can learn the surest diagnostic.

During the second stage, most of the symptoms mentioned in the first continue. The sick are then unable to sit up, though generally they sleep little, till towards the end of this period, when they begin to grow drowsy. They moan heavily, yet cannot tell what ails them. Their eyes are often turned towards their nose, or they squint outwards, and sometimes complain of seeing objects double. Some, towards the end of this stage, grow delirious, and cry out in a wild manner, as if they were very much frightened: about this time also, or later, they frequently void either real worms, or some substance like worms in a dissolved state; yet this discharge gives no relief to the patient, and only helps to deceive the less experienced practitioner, with regard to the nature of the disease. The urine in this, as well as in the other stages, varies; it has often a large sediment, sometimes none at all; but most commonly it deposits one of a light consistence and a white colour. In several, I have observed the urine have a large furfuraceous sediment, till within a few days of their death, when it had no separation. The breath has now, but especially in the last stage, such a sickish and offensive smell, as I do not remember to have observed in any other distemper. During the second, as well as the first stage, the patients are often, for some days, or parts of days, much easier than at other times.

SYMPTOMS OF THE THIRD STAGE.

When the pulse (which for some time was nearly as slow or slower than in a healthful state) rises again to a feverish quickness, and becomes regular, the third and last stage may be said to begin.

This change in the pulse is observed five, six, or seven days before death. In two patients only, the pulse did not become more frequent till two days before they died; and in two others, it began to grow quicker nine or ten days before that event.

As the time of this change in the pulse is different in different patients, so is the degree of its quickness. In some it rises, gradually, from below 70, 80, or 90 in a minute, to 120, 140, 170, and sometimes above 200, before they expire. In others, the pulse gets up more suddenly; in one day, perhaps, from 100 to 150. In the last stage, after the pulse grows quicker, it does not keep constantly to the same measure, but will be often a good deal slower for part of a day, and quicker all the rest. The pulse beats generally faster on the day they die, than at any time before. In one of those whom I attended, it beat above 210 times in a minute. I never knew any go off in this disease whose pulse did not rise to near 130 strokes in that time.

In the third stage, the patient, who before was little disposed to sleep, becomes then drowsy and comatose. When roused, he utters only a few incoherent words, and appears to be insensible. The beginning of the *coma* is uncertain; it is often about the end of the second stage, before the pulse grows quicker for the second time; but, in a few cases, I have known this quickness of the pulse come on before the patients become comatose. Frequently one eyelid loses its motion, and afterwards the other becomes also paralytic. About this time, or rather sooner, the pupil of one or both eyes ceases to contract, and remains dilated in the greatest light. But the time of this symptom varies much: in some it happens five, six, or seven days, in others only two or three days, before they die. Before they are seized with the *coma,* they sometimes complain of seeing strange and frightful objects. A day or two before death, the *tunica conjunctiva* of one or both eyes frequently becomes inflamed; but, they generally continue to hear for some days after they are blind.

In this stage, the patients are sometimes observed to be constantly raising one of their hands to their head; and are generally troubled with convulsions of the muscles of the arms, legs, or face, as well as with a *subsultus tendinum.* In a girl of thirteen, the day before she died, the hands were strongly bent inwards by a fixed spasm of their muscles. A youth of sixteen, who when in health had been liable to spasms, about the end of the second stage, began to be affected once or twice a day with a cramp in one of his arms, which ascended to his throat, and often prevented his speaking for some minutes. One of the cheeks will twice or thrice in a day grow hot and red, while the other, with the lips, remains pale and cold. These flushings generally appear, two, three, or four days before death. In a boy of five years old, one side of both his arms became frequently red, while the other side never changed its colour. After death, the arms and breasts have been seen of a deep purple colour.

I had one patient, who, four days before he died, bled once, and again at the nose. Those who have been costive before, often become loose in the third stage, and complain of gripes. A day or two before death, the patient either swallows with difficulty, or not at all. Lastly, the respiration grows more frequent and laborious; and, in some, there is a considerable pause after every expiration. This kind of breathing I have also observed in those who have died of an apoplexy, arising from a suppression of urine.

REMARKS

ON

DR. WHYTT'S ACCOUNT OF THE

HYDRENCEPHALUS.

Dr. Whytt has, in my opinion, very properly divided the disease into three stages or periods, chiefly distinguished from each other by the alteration that takes place in the pulse, which from being at first quick, becomes slow, and from slow becomes quick again; excepting however this change in the pulse, there is no decided change in any of the other symptoms, to mark the different periods of disease; the length or duration of those periods, even their relative duration is extremely uncertain, and differs widely in different instances.

Dr. Whytt's estimate of the duration of the disease, from beginning to end, including all the periods, does not coincide so exactly with my experience as that of Dr. Fothergil; but persuaded as I am of Dr. Whytt's accuracy, the difference between us may, with probability, I think, be ascribed to his not having distinguished between the primary and secondary disease; and when we consider with attention his own narrative, we can hardly entertain a doubt that this was the case.

"Children" (says he) "who have water in "the ventricles of the brain, begin to have "many of the following symptoms, four, five, "or six weeks, and in some cases *much longer* "before death." Again, p. 14. "This last "symptom (viz. head-ach) for the most part "begins three or four weeks, and in some "cases *several months* before the end of the "disease."

Now, I may venture to affirm, without danger of contradiction, that there is no example of an original or primary Hydrencephalus, (excepting when the sutures of the skull had opened and given way) continuing so long before the fatal termination. Dr. Fothergil has expressed himself very strongly and decidedly on this subject. "Dr. Whytt supposes that "the commencement of this disease is obscure; "that it is generally some months in forming; "that after some obvious urgent symptoms "make assistance necessary, it continues some "weeks before it ends fatally. This in general "differs from what I have hitherto observed. "I have seen children, who from all appear"ances were well, healthy and active, seized "with this distemper, and carried off in about "fourteen days. I have seldom been able to "trace the commencement of it above three "weeks."

Again, p. 45. "From being perfectly well "and sportive, some were seized with these "pains in the limbs, or with sickness and head"ach slightly, in a few hours, commonly after "dinner. Some have been observed to droop a "few days before they complained of any part "being much indisposed; in this manner they

" continued three, four, or five days, more or
" less, as the children were healthy and vigorous,
" when the distemper begins to shew itself
" in an alarming manner."

Some instances of Hydrencephalus, similar to those described by Dr. Fothergil, I have likewise had occasion to observe. Upon the whole, judging from my own experience, as well as from that of others, I think the average duration of the original disease, from first to last, may fairly be taken at three or four weeks; sometimes it may extend to five, perhaps even to six; but I have seen none where the skull did not give way of longer continuance.

Dr. Whytt says, that the first stage of the Hydrencephalus is always accompanied, more or less, with symptoms of fever. This, though perhaps not strictly correct, yet, as a general position, may fairly be admitted. The fever accompanying the disease he has described with much accuracy; but after all he is obliged to acknowledge, that it is not peculiar to this disease, as the same kind of irregular symptomatic fever occasionally accompanies every morbid irritation affecting the habit. The same remark applies equally to what he says respecting children, in the beginning of the complaint, looking pale, losing their appetite, flesh and spirits, with the various changes in the appearance of the tongue, urine, &c.; all of which circumstances are known to follow morbid irritation, by whatever cause excited. The other symptoms of the first stage, mentioned by Dr. Whytt, deserve more particular notice; because though they cannot be said, when taken separately, to be peculiar to the Hydrencephalus, yet when considered under certain circumstances of relation and combination, they serve, the last perhaps excepted, to distinguish the disease.

Of this description are the following; vomiting, head-ach, morbid sensibility to light, costiveness, with occasional purging and griping; inclination to lie a bed from low spirits, though more disposed to watching than to sleep; picking the nose, and grinding the teeth.

Vomiting is a symptom that occurs so frequently in the diseases of children, and is owing to such various causes, that if the cause from which it proceeds cannot be accurately traced, it affords but little information in regard to the nature of the complaint of which it is a symptom. The same thing may be said of head-ach, which, as well as vomiting, is sometimes original, sometimes symptomatic, and accompanies such opposite diseases, that unless the nature of this symptom be previously known, no inference or conclusion can be drawn from it, to determine the character of any other disease with which it may be associated; besides, as the head-ach is a symptom not always present, and when present differs so much both in situation, permanency, and violence, it can only serve to distinguish the disease when combined with others.

Costiveness, with occasional purging and griping. The first, according to my experience, is a constant symptom of this disease; as for the occasional purging and griping, I have never met with any instance of the kind. In one case, indeed, which I attended, the complaint began with symptoms of cholera; but I was then of opinion, and am still disposed to believe, that it actually was such, and entirely independent of the Hydrencephalus which immediately followed.

Morbid sensibility to light. This I should say, judging also from my own experience, was a constant symptom of Hydrencephalus; but, as it is a symptom likewise in every violent headach, or slight opthalmia, it requires the concurrence of other symptoms to admit of any rational and just conclusion to be drawn from it.

"Picking the nose, and grinding the teeth." The first is often a trick or bad habit acquired by children; as a symptom of disease, it appears to me in great measure confined to irritation of the bowels, whether from worms or from any other cause. The grinding of the teeth only occurs during sleep, and seems a symptom caused by dentition alone; at any rate, both one and the other must be considered as accidental occurrences in the Hydrencephalus, and totally independent of the disease.

The preceding are the principal symptoms mentioned by Dr. Whytt; who, although he has great merit in having given a faithful description, cannot (from the limited number of cases that came under his care) be supposed to have furnished a complete history of the disease; yet his description, considered as a first attempt, has certainly great merit, and has much improved our professional knowledge on this particular subject.

There are some symptoms, however, that escaped his notice; and others, which perhaps did not occur in the cases that fell under his observation.

Dr. Whytt mentions the morbid sensibility to light, especially to that of a candle; but, he takes no notice of the dilatation, and imperfect contraction of the pupil; though they are as constantly present as the other, at the commencement of the disease:' to these may be added, a slight degree of squinting or strabismus; which symptom Dr. Whytt only mentions as occurring towards the close of the disease, when it is indeed to a degree shocking to behold, and the patients either see double, or have entirely lost their sight. He notices also, the dilatation of the pupil, when it is compleatly immoveable, and when both sight and sensibility to light are entirely gone. He relates likewise a case, of which I have seen an example, where the pupils were contracted, though immoveable, and vision entirely lost.

Besides the morbid sensibility to light, I have observed, in some instances, a morbid sensibility to sound, where the patients suffered greatly from the slightest noise. Two other circumstances omitted by Dr. Whytt, but which highly deserve our attention, are the effects of posture and of motion.

A child with water in the brain, cannot bear an erect posture; for when put in that position, even for a short time, they become either faint or sick, and from any attempt at motion, they scream and cry out, evidently from suffering pain. This is one great reason of their always choosing to lay in bed, especially as by that means they also avoid the light.

The countenance of a child affected with this disease is, in general, strongly marked, being expressive of distress and suffering; their temper also, is particularly irritable and fractious: the head is commonly hot, or hotter than any other part of the body, and often covered with a clammy perspiration, which, when the child is asleep, becomes cold; and their countenance acquires a death-like appearance. The veins of the head, I have, on many occasions, observed greatly swelled and distended; and I have sometimes, also, remarked a puffy or œdematous swelling on the lower part of the forehead, immediately above the nose.

In the first stage, their position when in bed is commonly on their side, with their head low, and the knees drawn up; as the disease advances they roll the head from side to side, or throw their arms over it. They often sigh, and their breathing, at a time when there is no irregularity observable in the pulse, is extremely irregular, particularly when asleep. They express great dislike at being spoken to or disturbed, and are extremely averse to take any thing, either liquid or solid, particularly the latter. Altho' they vomit only occasionally, and commonly after eating, or from being put in an erect posture, they apparently suffer from constant sickness They vomit less frequently, when permitted to lie still, and without eating. What they throw up is only the food or drink they have lately taken. They retain their water longer than usual, and never have a stool but what is procured by purgatives, either given by the mouth, or thrown up as glysters; and in general, the strongest and most powerful medicines of this class are requisite to produce the effect. Their abdomen is commonly flat, and compressed, in a manner I have seldom observed, except in persons affected with the painter's cholic. Their urine has nothing remarkable in its appearance; but their evacuations by stool are remarkable both in appearance and smell, and entirely different from any evacuation of the kind I have ever seen.

Dr. Fothergill has described the stools very exactly. "They are most commonly of a very "dark greenish colour, with an oiliness or "glossy bile, rather than the slime which ac- "companies worms," p. 47. Their smell is more a cadaverous smell than that of feculent matter; and the breath acquires the same smell at the more advanced periods of the disease. Not only are the bowels insensible to the operation of purgatives, but the skin also is insensible to the usual stimuli; blisters, therefore, seldom rise: and the same insensibility seems to pervade the whole of the system. The heart is not excited in the usual way, by the introduction of mercury, and it is with much difficulty that a salivation can be raised, even from an extraordinary quantity of this medicine. The suffusion * of blood, on one or both eyes,

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* This suffusion is often mistaken for inflammation, from which it is totally different.

and the circumscribed flushing sometimes on one cheek, sometimes on the other, which Dr. Whytt has noticed as symptoms of the last stage, I have frequently observed at a much earlier period of the disease.

Having finished the enumeration and description of the symptoms of the first stage, before proceeding to those of the second, I shall examine how far those of the first, or any combination of them, afford a proper diagnosis; or, in other words, furnish the means of accurately distinguishing this disease from every other. But previous to giving any opinion of my own, I shall state the opinions of Drs. Whytt and Fothergill on this subject.

Dr. Whytt expresses himself in the following manner.

" These are the symptoms of the first stage, " during which it is very hard to distinguish " this Dropsy of the Brain from a slow fever, " occasioned by worms, by some other disorder

" of the bowels, or by some other cause. The
" vomiting once or twice a day, or once in two
" or three days; the head-ach, and the aver-
" sion to light, are the symptoms which, in the
" first stage of Hydrocephalus, characterize it
" most. But as worms, and other disorders of
" the stomach and intestines, are sometimes
" attended with most of these, as well as other
" symptoms that accompany the internal Hy-
" drocephalus in its first stage, we are often at
" a loss to find out the disease till it arrives at
" its second period. In the second stage the
" symptoms enable us, with some certainty, to
" discover the nature of the ailment." p. 13.

Dr. Fothergill, after giving a description of the symptoms, adds: " One sees, in this recital,
" many symptoms that are familiar to worm
" cases, teeth, and other irritating causes; per-
" haps it will be difficult to point out any that
" shall particularly characterize this disease. The
" pains in the limbs, and incessant head-ach and
" sickness, seem to be the most certain intima-
" tion of danger; these happen in other dis-

" eases of children, but neither so uniformly " nor so lastingly."

Again—" Two or three instances I have met " with that had very strong appearances of " being entered into the last stage of this dis- " ease, but were happily recovered. They " were actual worm cases, and were cured by " anthelumities. I had been led from those " appearances that were so similar to those " which attend the Hydrocephalus, to judge it " was the same, and to form an unfavourable " prognosis."

From the foregoing extracts it plainly appears, that neither Drs. Whytt nor Fothergill knew of any certain diagnostic or method of accurately discriminating this disease. Dr. Whytt was, however, of opinion that it might be discovered with *some* certainty in the second stage; whilst Dr. Fothergill acknowledges, that he mistook some worm cases for the last stage of this disorder.

Such decided sentiments respecting the uncertainty of the diagnosis has, I am sorry to say, had a very bad effect upon their cotemporaries; for whilst it turned aside modest merit from a pursuit, where men of their professional character had failed, it afforded a plausible excuse to the ignorant and inattentive.

I have, however, some hopes that the time is now arrived, when this excuse will no longer be made nor received; as, if I mistake not, it will evidently appear that the symptoms of this disease, when carefully attended to, and accurately examined, are equally sufficient to distinguish it, as those of any other internal disorder.

DIAGNOSIS.

Although the symptoms of Hydrencephalus have only one origin, viz. the collection of a watery fluid in the ventricles of the brain, yet this cause, simple as it is, produces two distinct and opposite effects; and consequently the disease is accompanied by symptoms of a kind and character not only different, but directly opposite to each other. For, whilst the weight and pressure of a watery fluid in the centre of the brain, causes symptoms of compression, or of a compressed brain, the distention of the delicate membranes lining its ventricles, produces symptoms of high irritation;* and though, in the course of the disease, sometimes the one set of symptoms, and sometimes the other predominate or take the ascendency—from first to last that strange admixture of opposite symptoms is perfectly evident.

But without attempting any further explanation of this singular appearance, I shall endeavour to enumerate the symptoms of each kind.

As symptoms of irritation, may be reckoned, The symptomatic fever—Head-ach—Pains in the nape of the neck and limbs—The morbid sensibility to light and sound—Squinting or strabismus, perhaps the dilatation of the pupil —Irritability of temper—Sickness and vomiting, screaming out suddenly during sleep — Catchings and twitchings of the muscles and tendons — Convulsions.

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* Vide Appendix, note A.

Whilst the slow intermitting pulse — The frequent interruptions in the breathing and deep sighing — The dilatation and imperfect constraction of the pupils of the eyes upon the admission of light — Their subsequent paralysis, and that of the muscles raising the eye-lids — The insensibility of the retina and total loss of sight — The costiveness and insensibility of the bowels to purgatives, of the skin to blisters, and, in short, of the whole system to the usual stimuli — Urine and stools coming away without consciousness — Loss of the power of swallowing — A constant drowsiness or dozing, terminating in coma — Are the well known and usual symptoms of a compressed brain, which combined with those of irritation, give from the beginning and during the whole course of the disease, a peculiarity of character that no other possesses.

But as it is of the first consequence that this part of the subject should be perfectly understood, I shall endeavour to illustrate what has been said, by giving some examples of the presence of those opposite symptoms at the same time, and in the course of the same disease.

Dr. Whytt has mentioned the morbid sensibility of the eyes to light; to which symptom may be added, a slight degree of squinting; both symptoms of irritation, which are always accompanied, more or less, by the dilatation and imperfect contraction of the pupils, well known symptoms of compression. The truth of this observation is easily brought to the test of experience. Take a child, suffering from the Hydrencephalus, to the light of a window or candle, suffer him to keep his eyes shut until he is directly opposite the light, then with the finger, raise suddenly the upper eye-lid: the dilatation and imperfect contraction of the pupil may be readily remarked; whilst the child, from its actions and crying, gives sufficient evidence how much it suffers from the experiment. Another example, is the constant drowsiness, with watchfulness, noticed in the first stage of the disease.

As a still further illustration, may be mentioned the irritability of the stomach, nausea, and disposition to vomit; along with costiveness, and a surprising insensibility of the bowels to the stimulus of the most drastic purgatives. The slow and irregular breathing, with a quick but regular pulse, which are commonly observed in the first stage, are a farther evidence upon this subject. And when to all this assemblage of incongruous and seemingly incompatible symptoms, is added, The age, countenance, position, and actions of the child—the effects of posture and motion—the appearance and cadaverous smell of the stools—the retention of the urine—unwillingness to be disturbed—aversion to food—constant nausea, with occasional vomiting, often brought on by posture or food—the almost constant head-ach, so violent at times as to render frantic the unhappy sufferer—with the certainty which the symptoms afford of the headach being a primary, and the sickness and vomiting only secondary affections:—when to all these are added, the insensibility of the skin, and of the whole system, to the usual stimuli—with the enlargement or swellings of the veins of the head—they altogether afford a diagnosis, of which, I believe, there are few examples in the records of physic.

I am perfectly aware, and readily allow, that many of the symptoms of irritation are caused equally by teeth, worms, or other irritating matters, affecting the alimentary canal; but I do affirm, that no irritation occasions the constant combination of opposite symptoms above described, besides many other circumstances peculiar to, and characteristic of this disease.

The diarrhea, fever and convulsions, symptoms often produced from the cutting of the first teeth, are described by every writer on the diseases of children; but in all those cases, and others which it is unnecessary here to mention, the heat of the mouth, with the swelling and redness of the gums, are sufficient evidence of the cause.

The symptoms that sometimes accompany the cutting of the second teeth, and third molares, are seldom mentioned, and, I am inclined to believe, are generally overlooked; although I have seen children from this cause alone, affected by many of the symptoms described by Dr. Whytt, as peculiar to the incipient Hydrencephalus: The loss of appetite, colour, flesh and spirits—irregular fever, pulse sometimes quick, sometimes intermitting—profuse perspiration, especially at first falling asleep—dilatation of the pupils of the eyes—slight strabismus. In such cases I have been sometimes consulted, from the alarm given even by professional people, mistaking those for symptoms of Hydrencephalus; and I have never felt more highly gratified, than from having had it in my power to quiet the apprehensions raised in the breast of parents on such occasions.

Worms, are another source of irritation that is alleged to cause symptoms analogous to those of Hydrencephalus. They, as well as teeth, often cause an alteration in the countenance, and healthy appearance of a child; likewise, occasionally, a symptomatic fever—irregular pulse, with sickness and vomiting, though commonly in the morning and on an empty stomach—a dilatation of the pupils—slight strabismus, spasms, sometimes of the gullet, and sometimes of the organs of speech and voice—catchings and epilepsy, or convulsions—drowsiness—fœtid breath—commonly an enlarged and hard abdomen, with irregular slimy stools. Such are the symptoms at times occasioned by worms, or other irritating causes, affecting the stomach and bowels. Now although some of these symptoms, such as the squinting and dilatation of the pupils, are equally produced by other irritations; the whole accurately examined, afford, like those of dentition, sufficient evidence of their specific origin; and cannot, in my opinion, ever be mistaken for those of Hydrencephalus.

What those ambiguous circumstances were in the cases mistaken by Dr. Fothergill, he has not told us, and it is impossible now to conjecture; but, I can declare with truth, that I never met with a case that gave me the smallest doubt, nor do I suppose, that any one who attends to the true character of the Hydrencephalus, can ever be in danger of confounding it with any other disorder.

If Dr. Whytt has failed in the diagnosis, or if his history of the disease be not compleat, yet, considering it as a first attempt, with the small number of cases from which it was drawn up, it appears the work of a master: and though some things are omitted, it must be allowed that much also has been executed. In the advancement of science, individuals perhaps, like ages, make only a certain progress; they often draw the outline only of the picture, leaving posterity to complete the shades, and put in the colours.

Having now finished the observations I had to make on the first stage of the disease, and pointed out that peculiarity of character by which it may be distinguished, even at this early period; for at any subsequent one, a knowledge of the disease, however useful for the credit of the physician, can be of little advantage to the unhappy patient; I shall proceed to make a few remarks on Dr. Whytt's account of the second stage.

The second stage is ushered in by a remarkable alteration in the pulse, which not only loses its febrile frequency, but falls much below the natural standard; whilst at the same time it becomes intermitting and irregular in strength. Dr. Whytt says, "During the second stage, "most of the symptoms mentioned in the first "continue." This is generally, though not altogether strictly true; as during this stage, or before the close of it, the eyes lose the morbid sensibility to light, and the pupils lose the slight degree of contraction which they possessed in the beginning; in short, during this stage, the symptoms of a compressed brain, seem to predominate over the symptoms of irritation. The strabismus, it is true, becomes greater, and to a degree often frightful to behold; but I look upon this symptom, at the present period, to be more the effect of the paralysis of antagonst muscles, than the consequence of irritation. If any sight remains, they now complain of double vision. The vomiting and head-ach continue, although the first is, I think, less frequent, and their suffering from the head-ach, if equally severe as at first, is less distinctly expressed. Sighing deeply, moaning, sudden screaming, the almost constant rolling of the head, being their only language. The coma or stupor seems gradually to gain ground, and towards the end of this period to be compleat, or to terminate in that low delirium, the usual attendant of such a state. The breath now acquires the same cadaverous smell as the stools. Dr. Whytt says, that though at this period the pulse is slower, the heat of the skin continues, or seems to increase; this may possibly be the case in some instances, but I do not think that it can be established as a general rule. The voiding of worms at this time, or any trifling alteration in the appearance of the urine, are accidental occurrences undeserving our notice, as they throw no light either on the nature or progress of the disease. Dr. Whytt informs us, that he insisted the longer on the state of the pulse at this period, as from thence we can learn the surest diagnosis; but if we are ignorant of the nature of the disease till then, *sero medicina paratur*—the undertaker, not the physician, may be sent for.

The third stage is marked by the sudden change of the pulse, which, from being slower than natural and intermitting, becomes regular and acquires a greater frequency than at first. The comatous symptoms increase—the urine and stools run off involuntarily—the upper eyelids fall down—the patients lose the power of swallowing—there is often a perspiration on the skin, with catchings of the tendons, accompanied with flushing in one or both cheeks—suffusions of blood on the whole of the eye or eyes—the pulsations of the heart become gradually more frequent and feeble; it seems to flutter rather than to beat, until it ceases entirely to act; or the unhappy sufferer is carried off by a general convulsion or spasm.

EXPLANATION OF THE SYMPTOMS.

This is usually expected in treatises of this kind, but after what has been already said of the symptons of Hydrencephalus being of two kinds, those, viz. of irritation and compression of the brain; and having given an enumeration of each kind, little more seems necessary to be added on this subject.* There is one symptom however —the enlargement or distention of the veins of the head, and puffy swelling above the nose, which having escaped the observation of Drs. Whytt and Fothergill, and belonging to neither set of symptoms described, remains to be accounted for.

The explanation appears to me simple and natural. The fluid collected within the ventricles must, by its pressure on the longitudinal sinus and other internal veins of the head, prove an impediment to the free return of venous blood from the brain, and of course occasion a greater proportion of that fluid, to be returned by the external veins, which must necessarily cause a swelling or distention of them. But, as it is only a certain quantity that these can easily transmit, a remora to the returning venous blood soon takes place in the external as well as the internal veins. And as every remora proves, sooner or later, a cause of dropsy; and the cellular membrane immediately above the nose being of a looser texture than in any other part of the forehead, the œdematous or dropsical swelling makes its appearance first in that part.

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* Vide Appendix, Note A.

The suffusion of blood on the tunica albuginea, or white of the eye, often noticed in the Hydrencephalus, especially in its last stages, and the occasional bleeding at the nose, observed in one case by Dr. Whytt, admit of explanation upon the same principle. The very great frequency of the pulse in the last stage of the disease, is ascribed by Dr. Whytt to irritation: I am, however, of opinion, that during this last period, the excessively quick and feeble pulse is more the effect of debility than of irritation. We observe that the same quickness in the pulse, or action of the heart, takes place in animals bled to death; and I observed the same thing in two children, who died, I am persuaded, sooner than they otherwise would have done, from the sudden absorption of the fluid accumulated in the ventricles. In both instances, the pulse became quick and feeble, in proportion as the other symptoms of the disease (whether of irritation or compression) disappeared. And Dr. Whytt's observation, that "the pulse beats generally "faster on the day they die, than on any "other," seems a farther confirmation of my opinion.

APPEARANCES ON DISSECTION.

Having finished what I had to say, respecting the symptoms and diagnostics of the Hydrencephalus, I shall now give some account of the morbid appearances after death; which, considered either as cause or effect, are the source of the most useful medical knowledge; and throw more light than any other circumstance on the nature and character of most diseases.

In the Dropsy of the Brain, the water is lodged (as has been stated) in the two lateral ventricles: but although these are the parts chiefly occupied by the fluid, a small quantity is likewise found in the third and fourth ventricles, owing to the communications between them. The lateral ventricles are, for the most part, equally distended, but not always so: on two occasions, observing one side of the face and body to be more affected than the other, I was led to suspect that one ventricle was more distended than the other, although I had no opportunity of confirming my suspicions by dissection. Dr. Whytt, however, mentions a case where this fact was ascertained, by the examination of the body after death.

The fluid contained in the ventricles resembles the purest water, being perfectly transparent and colourless, neither coagulating by heat, nor from the admixture of mineral acids. When exposed for some time to the heat of boiling water, it evaporates to dryness, leaving hardly any residuum. The quantity cannot be accurately measured; it varies considerably in different cases, from two to four, or possibly to six ounces. Besides the morbid collection of a fluid in the ventricles, other morbid appearances have been taken notice of. Mons. Petit says, that he often found the pineal gland, or *glandula pituitaria*, scirrhous; and Dr. Whytt mentions having once seen the *thalami nervorum opticorum* on the right side, the size of a small hen's egg, of a firm consistence, and yellowish colour. And the late Mr. Ford, surgeon in London, a gentleman of much professional accuracy, informed me that he had (in some cases of Hydrencephalus) observed on dissection, the corpora olivaria and pyramidalia diseased and enlarged.

From these examples, no doubt can remain that, in some cases of Hydrencephalus, certain portions or parts of the brain in the vicinity of the lateral ventricles, are in a diseased and enlarged state. But, as I never met with any appearance of the kind, I am induced to believe that these organic affections occur but rarely. Besides the collection of a fluid, with the sodden and flaccid appearance of the ventricles, the only unnatural circumstance that ever struck me, was a number of red points observable on making a transverse section of either hemisphere of the brain; which in my opinion, are nothing more than the small veins of the brain gorged with blood, owing to the compression made by the distended ventricles on the sinuss, or larger veins: but whether this conjecture is well or ill founded, there is one thing of which I am confident, and am certain that every anatomist, conversant in the dissection or examination of morbid bodies, will agree with me; that neither the brain itself, nor its membranes, in any case of genuine Hydrencephalus that ever yet has been examined, shewed any appearance of inflammation, or of the usual effects of this having taken place.* This remark I feel myself called upon to make, as several very eminent men have entertained an opinion, that the collection of fluid in the brain is always the consequence or effect of phrenitic inflammation. But the authority of no name, however respectable, can be put in the balance against the authority of facts and experience. Another mistake on this subject, it may be proper to notice.

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* Serous effusions, the consequence of inflammation, are always turbid, and mixed with flakes or filaments, whilst the surface of inflamed membranes are covered with coagulable lmpyh, the membranes thickened and adhering to the contiguous surfaces.

Dr. Fothergill supposes, or conjectures, that the fluid in the case of Hydrencephalus may originate from the rupture of a lymphatic vessel; but that there are such within the skull remains to be proved, or that there ever was an example of such rupture, in parts of the body where they certainly exist. But, what is decisive against this opinion is, that the fluid contained in the lymphatics, like the lymph in the blood, coagulates with heat and mineral acids, but the fluid in the ventricles not at all.

Upon the whole, we feel ourselves justified in concluding, that the Hydrencephalus is a dropsical effusion, and occasioned, as we shall presently shew, by the same causes that are known to induce it in other parts of the body.

OF THE
CAUSES OF HYDRENCEPHALUS.

We shall begin this investigation by pointing out the subjects of the disease, with the peculiarity of constitution, and other circumstances favourable to its production.

It is generally allowed, that infants or children are, with few exceptions, the only persons liable to this complaint; and that children of either sex are equally so, with this difference, however, that females are sometimes attacked by the disease at a more advanced age than males. I do not recollect having seen a boy with the disease after nine years of age; but I have attended several females at twelve and thirteen, and one young lady, the daughter of a clergyman, in her twenty-first year. Children of a fine clear complexion, lively or sprightly disposition, having a peculiar softness of the muscular fibre, who are easily lowered by evacuations, and fatigued by exercise, those especially who are of a cold languid habit, where there is a feeble action of the heart, and a want of vital energy, are, from what I have observed, more subject than others to this disease.

Children, also, seem more liable to be affected by Hydrencephalus during dentition, than at any other period. An opinion has very generally prevailed, although I am persuaded without any foundation, that the complaint was connected with a particular shape of head. Scrophula has been mentioned by some as a predisposing cause; and I readily admit, that the same predisposition is favourable to both diseases.

That this complaint has proved particularly frequent and fatal in certain families, is a well known fact. The immediate cause of this unfortunate propensity may be difficult to explain;

but, so far as it originates in constitution, we cannot be surprised to see the children of the same parents have a similar constitution, which naturally leads to similar diseases.

Sometimes children, apparently in the best health and spirits, are suddenly seized with the disease; but, in the greater number of cases, its origin may be traced to bad nursing, improper food, hard water, dentition, and other debilitating causes, or to some previous disease, by which the child's strength and general health has been impaired.

From the preceding account of the subjects and predisposition to Hydrencephalus, it is evident that the disease is generally confined to infancy and childhood, and seems connected with the weakness peculiar to that time of life, when the constitution, as is well known, has not yet attained that strength and vigour which it afterwards acquires; and this connection or relation farther appears, from observing that females, naturally of a more delicate and lax habit than males, are longer subject to the complaint than the latter more robust sex.

The circumstances of predisposition are likewise such as lessen the powers and energies of life; and when the Hydrencephalus occurs as a secondary complaint, the previous diseases are all of them remarkable for the weakness they induce, and which is followed, not only by Dropsy of the Brain, but by the same disease in other parts of the body.

As it appears then, that the Dropsy of the Brain agrees in all the principal circumstances with the general character of the class, we are warranted in concluding that it has a similar origin, or must arise from the same causes, which we have already proved to be, either an obstruction to the return of the blood through the veins, or weakness, general or local. The first is probably the cause in those instances of Hydrencephalus accompanied with a diseased organic structure of some portions of the brain adjoining the lateral ventricles; but, as examples of this are not frequent, we must look upon the other cause, viz. weakness, general or local, or both, as the usual source of the disease.

In the Introduction, I endeavoured to prove, by evidence derived from our experience and observation of diseases, the only evidence the subject admits, that general weakness or debility was a frequent cause of dropsy; and this fact I consider to be so well established, as not to be called in question by the most sceptical. The case, however, is very different with respect to local debility, the existence of which, as a cause of dropsy, is not ascertained by the same evidence, but rather inferred from analogy, or assumed as a means of explaining the phenomena or appearances of the disease. Fortunately, however, in the present instance, we are not under the necessity of having recourse to supposed or doubtful data: as general weakness, with the circumstances peculiar to the infantine constitution, are of themselves sufficient to explain the origin of the disease.

The brain, and its appendage the spinal marrow, are known to be the parts of animals first formed; they are also the first parts developed and brought to perfection, and on this account, probably, the head of a child is larger, in proportion to its size, than that of an adult.

The brain and nervous system of children, have more sensibility and irritability than those of adults; for which reason, they are more sensibly affected by impressions of every kind, they are more quickly lowered by evacuations, and sooner exhausted by fatigue.

The energy of the brain of a child, depends chiefly on the vigorous action of the heart, and will be found to be in proportion to the action of the heart, and to the quantity, and possibly quality, of the blood sent to the head.

In all cases of general weakness, the heart is the part of the system first sensibly affected; but from what has been above stated, every cause lessening the action of the heart, and rendering its contractions weaker or less frequent, must have an immediate and direct effect on the energy of the brain of a child: now, as the action of the absorbent vessels is known to depend upon the vigour and energy of the part to which they belong, the lessening the energy of the part, necessarily diminishes the action of the absorbents; and as we know from experience, that their action can be increased by the occasional excitement of stimuli or irritation, we have reason to conclude that their action is lessened by diminishing the natural exciting causes, and lowering the tone or energy of the part. But, if this conclusion is just, and to me at least it appears to be so, the origin or formation of the disease, can easily be traced to general weakness alone, combined with the peculiarities* of the infantine constitution, without the aid of any local weakness, or other partial affection.

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* Of these peculiarities, the chief are the large proportion of the head to the body, and the natural propensity to watery effusions. Morgani always found a larger proportion of fluid in the cavities of children, than in those of adults.

CURE OF THE DISEASE.

WE come now to the last and most important part of our subject, viz. the Cure of the Disease; which is the object and ultimate end, of all medical investigation.

The knowledge of the various parts and functions of animal bodies, the deviations from nature of which they are susceptible, with the numerous diseases to which they give rise, however interesting to the philosopher, or lover of science, are only valuable to the practical physician, in so far as they facilitate his art; or lead to a more expeditious and certain method of removing or alleviating human pain and suffering.

Drs. Whytt and Fothergill, the two physicians who first described the disease with tolerable accuracy, gave no encouragement to hope for success in curing it; both of them considering it as one of those complaints incurable by nature, and unfortunately out of the reach of art. Nor did any one entertain a contrary opinion, until Dr. Dobson of Liverpool, in the beginning of the year 1775, led by a kind of analogical reasoning, employed mercury with the view of exciting a salivation, and by this means to cure the disease. Whether the reasoning was well or ill founded is immaterial, as the practice succeeded, and the patient recovered; for whoever reads the description of the cure, published by Dr. Dobson himself, in the year 1780, in the 6th vol. of the London Medical Observations, will have no doubt that his little patient laboured under a genuine Hydrencephalus.

Since Dr. Dobson's publication, mercury has commonly been employed as the chief remedy for the cure of this disease, and though on some occasions with success, yet such was the general failure, that many physicians of eminence, especially in the metropolis, became extremely sceptical respecting the related instances of success. Not that they called in question the veracity of the relators, but were very doubtful whether the instances of the disease, said to be cured by mercury, were in reality true cases of Hydrencephalus; and the uncertainty that was acknowledged of distinguishing the disease, gave too much probability to such suspicions. In respect to myself, I am ready to confess, that having employed mercury on eight or ten different occasions, and though salivation had been sometimes excited, without one successful termination, my sentiments were much the same with the gentlemen above mentioned, until the fortunate issue of one case of Hydrencephalus to which I was called, convinced me of the danger of forming hasty conclusions, as it carried the most compleat conviction to my mind, that recovery from this formidable disease, however rare, was not impossible; and convinced me, that my previous unsuccessful endeavours, and those of others, were rather to be imputed to our not having seen, or from not having known the disease at an early period, than to any want of skill in the treatment, or of efficacy in the means employed.

The mother of the patient, to whose case I allude, was a widow left with four children, two of whom she had already lost by this disease, which was ascertained after death by the examination of the bodies. That they had the best medical assistance will not be doubted, when I mention the names of Drs. Warren and Turton, who attended them. The anxiety of a parent naturally led her to be extremely attentive to the symptoms of the disease, and from the loss of two children, she took alarm immediately upon the slightest appearance of indisposition; she therefore, upon the youngest remaining child being attacked by the disease, sent immediately to an apothecary of considerable reputation in the neighbourhood, who attended the child for three or four days before I was called in: and so rapid had been its progress that, even at this early period, the slow intermitting pulse, mentioned by Dr. Whytt as the characteristic symptom of the second stage, had already come on, which afforded me but small reason to expect, that I should be more fortunate here than on former occasions. However, I determined to make some alteration in my mode of treatment, and as the child, though long ill, at last perfectly recovered, and has since been a mother herself; and as I imputed, whether justly or not, her recovery to the method of treatment which I adopted, I shall give some account of it; and to do so, I am still farther induced from having succeeded in another instance, where the child was under my own immediate care and direction; and in two others, where the same method was pursued, in consequence of my advice; besides two more that came under my care, where, though the disease terminated fatally, an absorption of the fluid took place, as was apparent in the one from the symptoms, and was confirmed in the other, by the examination of the brain after death.

Although I had hitherto been disappointed in the advantage I had promised myself from the use of mercury in the cure of the disease, and though discouraged with the difficulty I experienced in raising a salivation, and in regulating it when raised; I still entertained the highest opinion of the efficacy of the remedy; but thought it might prove more useful if combined with other medicines, by which its effects might be determined to the kidneys, where its operation at least would be attended with no risk or inconvenience. And having, in other cases of encysted dropsy, particularly in hydrothorax, observed the happiest effects from the combination of mercury with the fresh squill, I resolved to employ it so combined on this occasion.

My form and manner of using it, was the following—Ten grains of crude quick-silver was rubbed down with twenty or thirty grains of cordial confection, or manna, to which afterwards, five grains of the fresh squill was added, and the whole made up with any syrup, to the consistence of a soft bolus or electuary, to be divided into such small parts or portions, as was necessary for its being administered along with a little gruel, panada, or the like: and where it could not be conveniently administered in a solid form, I have given it as a mixture, suspending the mercury by means of some mucilage; but I prefer giving it in the first way, where it can be done. The dose above mentioned, that is, ten grains of mercury, with five grains of the fresh squill was given every six or eight hours, where the child's stomach could bear it. The efficacy of this medicine I have occasionally endeavoured to promote, by giving other diuretics at the same time; but, the stomach will seldom admit of this practice.

Another part of the treatment in the Hydrencephalus, which I consider as of the first importance, is the application of caustic to the bregma, or rather to what was the bregma, the junction of the sagittal and lambdoid sutures; I prefer this part of the head to every other, from the frequent communications at this place, between the internal and external blood vessels, and nerves.

The caustic has the advantage of a blister, being more certain in its effect, and more powerful in its operation. The first can only act on the living fibre, the second acts equally on the dead. The first only raises the epidermus or scarf skin, the other destroys the skin itself; the first is a trifling stimulus, and transitory in its operation, the other a powerful one, and whose effect is necessarily continued for a considerable time, during the sloughing off of the eschar; and by proper means, a discharge and irritation may be kept up as long as is required. The very powerful and beneficial effects arising from the application of caustics, has been very fully illustrated by the practice of the late eminent Mr. Pott, in scrophulous tumours of the spine, accompanied with palsy of the lower extremities, and in other similar complaints.

The caustic I usually employed was the lunar caustic reduced to a powder, put on the surface of any adhesive plaister, spread on strong leather, of the size and shape of an elongated half-crown, more or less, according to the age of the child, and renewed every twelve hours, until it produces a sufficient eschar, destroying the skin of the part; a suppuration and separation of the eschar, is afterwards promoted by the usual surgical dressings. The rest of the head, after being shaved, I ordered to be covered with a flannel cap, moistened from time to time with brandy, or any proof spirit.

The first child, whose recovery I have mentioned, had a drain or issue kept on the head, for several months, owing to the apprehension the mother was under, of the child suffering a relapse of the disease.

The remaining part of the treatment in the Hydrencephalus, relates chiefly to the management of the bowels, and supporting the strength; not only by an appropriate nourishment, but likewise by the use of cordial and tonic medicines: an attention to particular symptoms, may also in some cases be necessary.

Dr. Whytt informs us, that children in this disease are commonly costive, though sometimes they have returns of looseness; but, excepting in one instance, I never saw any disposition to purging; in this case, (an account of which will be found in the Appendix) the bowels were the part chiefly affected for the first two or three days, during which time, there was no suspicion of Hydrencephalus.

In all other cases of this complaint which I have seen, obstinate costiveness has been a constant symptom, and in no instance (the painter's cholic excepted) have I found such difficulty in procuring evacuations by stool.

The intestines in this case, partaking in the general insensibility, can hardly be acted upon, or stimulated by the most powerful cathartics. Gumboge, or resin of scammony with calomel, I have found the most useful medicines on such occasions; by means of these, or of something similar, the child's bowels should be evacuated once a day, or at farthest once every other day.

The child's strength should be supported by proper nourishment, which though highly necessary, is not always easily accomplished, as children labouring under this complaint, have constantly more or less of nausea; and as they suffer from light, erect posture, and motion, they are unwilling to be disturbed, still more so to be taken up, even to be raised in bed, and most of all are they averse to take either food or medicine.

Their cries however or resistance must not prevail on such occasions, where their life is at stake. Solid food of all kinds being more apt than liquids to cause vomiting, should for that reason be avoided. Liquid nourishment should be administered frequently, and in small quantities at a time, Chicken broth, with vermicelli, chicken panada, animal and vegetable jellies in a liquid state, with a little wine, is perhaps as proper as any. Broth glysters should likewise be thrown up from time to time, which serve the double purpose of nourishment and medicine. Of cordials, one of the best, I believe, is a little generous wine, whether sweet or not, may be be left to the taste, and, where there is thirst or fever, diluted with water, according to the circumstances and symptoms.

Of the shop cordials, the one I have commonly used is our cordial confection, mixed with cinnamon or mint water, sometimes adding a small quantity of spirit æther vitriol, nitrous æther, or volatile alkali. I have also given occasionally the chalybeate wine, or ferrum carbonatum as a tonic, when I judged such medicine to be necessary.

In this disease, it is obvious that very little can be done by the physician in the way of relieving or palliating symptoms. Costiveness I have already mentioned, and the most probable means of obviating it. The symptomatic fever is sometimes in this, as in other similar cases, lessened by purging. The headach I have known so be mitigated by leeches applied to the temples. The cause of the relief they afford is sufficiently explained, from what has been said of the swelling and distention of the external veins of the head. But the chief and most distressing symptoms, viz. the head-ach, sickness and vomiting, can only be effectually relieved by removing the disease, or, in other words, the fluid in the ventricles of the brain; which I am convinced, may in many instances be done by the means I have recommended, when employed at an early period of the disease; and if the diagnostic, or method of distinguishing the disease in the beginning, which I have laid down, be attended to, examples of recovery from Hydrencephalus, will, I hope, in future be more frequent than they hitherto have been.

That absorption takes place in the brain, as well as in every other part of the body, will not be denied; that we possess the means of exciting or promoting the absorption there, as every where else, will as little, I think, be refused us. What is the distinction then between a dropsy of the ventricles of the brain, and any other encysted dropsy, that should render the first a more fatal, if not an incurable disease? There is only this difference, that I know:—When water is collected in the abdomen, or in the chest, if we are fortunate enough to remove the fluid, the elasticity of the cartilages of the ribs, with the contractile power of the intercostal and abdominal muscles, together with the elasticity and expansibility of the air contained within the lungs, stomach and intestines, are sufficient by their pressure, to compensate the loss of the fluid removed. Whereas, in the case of water, contained in the ventricles of the brain, if the quantity of fluid be considerable, and suddenly removed; the surrounding parts are incapable of adapting themselves to the change, or of filling up, by their contraction, the space occupied by the fluid; (the skull being an immovable bone, and no part of the brain possessing either elasticity, or the power of contraction.) It is evident then, that no case of Hydrencephalus is curable, unless where the water is in so small a quantity, or so gradually absorbed, that the increased quantity of blood in the sinuses, and other parts, of the sanguiferous system, within the skull; or the expansion of the blood contained in those vessels, are sufficient by their pressure to prevent the vacuum, which otherwise would take place on the removal of the fluid.

What quantity of water in the ventricles is compatible with recovery, it is impossible to say; it must admit of considerable latitude, according to circumstances, and particularly according to the quickness or slowness with which it is removed, and greatly according to the age of the patient. We cannot, however, have a doubt that this has its limits, beyond which all idea of cure is illusory. But if the comparison between the Hydrencephalus and other encysted dropsies, in this respect is discouraging to our hopes, in others, perhaps, it has the advantage.

In the greater number of encysted dropsies, whether of the chest or abdomen, this complaint is secondary, and oftimes the effect of some morbid organic structure; but the contrary we have shewn to be the case with the Hydrencephalus, which in nine cases, at least, in ten, is the consequence of debility alone. This circumstance gives the Hydrencephalus a decided advantage over the others, for the chance of recovery. As all diseases of weakness may be, and frequently are cured, whereas, those that arise from diseased organic structure, are seldom within the reach of art, or even of nature.

Upon the whole then, we pronounce the Dropsy of the Brain, a complaint which may be distinguished, with certainty, by its symptoms; and which generally proves fatal, not so much from its own nature, as from not being known, or from being improperly treated at an early period of the disease.

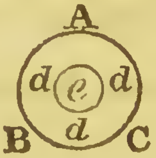
APPENDIX.

A.

WHEN writing the above, I was not aware that the pathology respecting the compression and irritation of the brain had ever been called in question: but, if I am to believe the report of Dr. Cheyne, who, I doubt not, has faithfully stated the opinion of cotemporary writers, these doctrines are now compleatly exploded. He seems even surprised, that Dr. Whytt, one of the first physiologists of his time, and the formidable antagonist of the great Haller, should have entertained such false ideas of the disease: forgetting, certainly, when he made the observation, that those doctrines are not founded on opinion, but on facts, ascertained by experiment and observation. That the brain is susceptible of compression, he tells us, is called in question by some of the most eminent physiologists, although who they are, we are not informed. I have, however, no hesitation in saying, that they doubt a fact, not only proved by experience, but capable of mathematical demonstration.

From physical experiments we learn, that water can not be compressed; but from the same source we are informed, that all solids can. But, if the firmer and harder solids are susceptible of compression, it follows, *a fortiori,* that those of a less compact texture certainly are. This fact, however, as I have said, admits of a mathematical demonstration.

Suppose, for instance, a sphere, A B C, filled with solid matter, and a certain quantity of water afterwards introduced into its centre, so as to occupy the space *e*; the solid matter, in this case, must be confined to the space *d d d*; which being less than the whole sphere A B C, it must, supposing the size of the sphere to remain unaltered, be either diminished or compressed.



That it is ever diminished in the acute Hydrencephalus, has not yet been alleged, nor could such a supposition be admitted; it therefore follows, that it must be compressed.

The observations of Meckel and Morgagni, two of the first anatomists, afford a further illustration, if such was required, that the brain is capable of being compressed. Meckel, if I recollect right, for I quote only from memory, has observed, that the brain in lunatics was, in many instances, specifically heavier than in other subjects. And Morgagni has remarked, that in the dissection of lunatics, he found the cerebrum, in such cases, much harder and firmer than usual.*

As the symptoms that follow from compression of the brain, are so generally and fully related by all practical writers, and arise so frequently from external injury, it is unnecessary here to give any account of them. It may, however, be proper to remark, that partial compressions of the brain are sometimes accompanied with symptoms of irritation, such as vomiting, fever, and convulsions: of this I have seen some examples, and surgeons in extensive practice must have witnessed many more.

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* Vide Appendix, note M.

I do not, however, ascribe the symptoms of irritation, in the case of Hydrencephalus, either to the pressure or acrimony of the extravasated fluid in the brain, but to the distention of the fine membrane lining the ventricles: and to this conclusion I am led by analogy, having constantly remarked irritation, and often pain, excited from the distention of similar membranes, in every other part of the body.

That the skin is affected with pain and inflammation by distention alone, is apparent from what often happens in anasarcous swellings of the lower extremities; and that pain and irritation is the usual consequence of partial distention of the intestines with air, will not be denied. The pain and irritation, also, arising from the distention of the ureters and ductus choledochus, by nephritic calculi, and bilious concretions, is well known. In the first it may be alleged to be the consequence of the asperity or roughness of their surface, although this is not always the case; but gall concretions, however unequal in size or form, have constantly a smooth surface; and yet the pain occasioned by these, is not less violent than the pain from renal calculi.

To the preceding examples may be added, the symptoms of irritation produced by the distention of the alveolar process, from the growth and protrusion of the infant teeth, even when unaccompanied by pain: and the irritation often excited from the distention of the uterus, &c. in the first months of pregnancy. But if distention alone, can give rise to symptons of irritation, in all other membranous parts of the body, we are fairly warranted to conclude, that it will have similar effects on the sensible and irritable membranes lining the ventricles of the brain.

To all these facts and inductions, it has been objected, that water, in some few cases, especially in lunatics, has been discovered after death, in the ventricles of the brain, where none of the symptoms attendant on Hydrencephalus had been observed; and therefore, that water in the ventricles, cannot be supposed to produce the symptoms imputed to it. But if such conclusions were admitted, the cause of few diseases could be ascertained; we might conclude, with equal reason, that gall concretions never cause pain or irritation, because there are instances to the contrary; or that the insertion of the variolous matter, did not cause the small-pox, because there are some persons not susceptible of this disease, and instances where it will cause the disease at one time and not at another. We have not sufficient acquaintance with the animal œconomy to explain all these peculiarities, but may justly affirm that some negative instances, never can invalidate the evidence arising from general observation.

To the conclusion drawn from the cases of lunatics, my objection is still stronger, because in such unfortunate individuals, the constitution *

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* Even the consistence of the brain itself is found altered.—Vide note M. Appendix.

is so completely altered, that the same causes do not produce the same effects. Mad men often support, without any seeming inconvenience, a want of food, sleep, cold, and endure degrees of fatigue, that they could not do when in health. As there is no analogy then between the constitution of lunatics and persons in their senses, no inference can be taken from such dissimilar conditions of the human body. These reasons appear to me sufficient to invalidate any conclusions drawn from this source.

B.

Extract of a Letter from the late Mr. FORD, *Surgeon, Golden Square, London.*

I perfectly recollect the conversation I had with you, on the subject of Hydrocephalus, when we met at the Society, which published the Medical Communications. My ideas were then, as they are at this time, that the Hydrocephalus is less frequently, an original disease than is generally imagined; my opinion was taken from the examination of several subjects, who had died with this disease, and (I communicated some of these cases to Dr. Simmons, who published them in the 11th vol. of the Medical Journal, p. 56.) I have had frequent opportunities since, of confirming that opinion; but, partly from a consideration that it led to a practice in diseases, distant from my pursuits in life, and partly that my mind became oppressed from domestic misfortune, I forebore to pursue this investigation.

Golden Square, 20*th July*, 1804.

C.

A Case of Hydrencephalus, *with Distention, and Inflammation of the Bowels, with the Appearances after Death, by Dr. J. C. Smyth.*

Miss S. eleven years of age, formerly healthy, well formed and active, was, some days previous to my seeing her, seized with vomiting and purging, the usual symptoms of cholera; accompanied with head-ach, for which she had taken an emetic and some opening medicine; the purging ceased in three or four days, and on the 13th of March, when I first saw her, she had been three days without any motion. I found her in great agony, from pain in her bowels and head; the whole abdomen, but particularly the præcordia so tense and swelled, that she could not bear the slightest pressure on the part, and at times she beat her forehead with her hand. Her pulse was irregular, and rather slower than natural for a person of that age. The heat of her skin and hands was temperate, and her countenance, though at times distracted with pain, was not flushed; her tongue was white and moist. Apprehending that the chief and most immediate danger was from peritoneal inflammation, which had either taken place, or might soon be expected—I ordered blood to be immediately taken from the arm, the abdomen to be fomented, glysters thrown up, and an opening medicine to be given every four hours, until proper evacuations should be procured.

This treatment so far succeeded, as to relieve the pain and tenderness of the abdomen; but she had no sleep, and next morning I still found her screaming as before, but chiefly from the violence of the head-ach, complaining that her head was splitting asunder. Upon examining her eyes, I found the pupils considerably dilated; which circumstance, with the violence and unremitting acuteness of the head-ach, led me now to suspect some material injury to the brain, and that the head-ach was not altogether symptomatic or secondary.

On the 20th her countenance continued to be rather pale, the heat of the body temperate, the pulse irregular, and, unless when she was agitated by the violence of pain, rather slow

On the 21st, the enlargement of the pupils, and insensibility of the eyes to light, increased; one of the eyes appeared blood-shot, and the strasbismus or squinting was now shocking to behold.

On the 22d the head-ach continued with almost unremitting violence, she never slept, was said to be light-headed in the night; but I found her always perfectly sensible during the day, and her senses and speech remained until within five minutes of her death, which happened on the 23d. About twelve hours before her death, her pulse became quick, and her mouth rather parched, with a rattling in her throat; when asked where her pain was, she put her hand on her forehead, then on the præcordia.

During the few days that I attended her, she was freely and repeatedly purged, by means of calomel and scammony, with some of the neutral salts. Her bowels were constantly fomented, and glysters thrown up; besides which, she took small doses of calomel with camphor in powder, washing them down with a saline mixture and vitriolic æther; blisters were applied to her head, back, and behind her ears; and on the 22d (the day before her death) I gave her the compound powder of Ipecac, with calomel, which sweated her; and at first she seemed relieved, but the relief was of short duration; she made water freely, and passed some hard waxy feces.

DISSECTION.

This was performed the day after her death, by the surgeon who attended her. Upon removing the integuments of the head and cranium, a slight adhesion was found between the dura and pia mater, immediately under the vertex. The veins of the brain seemed to me unusually turged with black blood, though the dissector did not think that there was in this any unusual or preternatural appearance. There was a small quantity of fluid between the pia mater and convolutions of the brain; upon cutting through the two hemispheres, to get at the lateral ventricles, blood oozed out from the cut surface of the medullary part, which seemed dotted with a great many red points. Upon removing the cut portions of the hemispheres, the ventricles were seen distended with fluid, the fluctuation of which was very perceptible, and upon cutting into them, they were found to contain a pure pellucid lymph, nearly two ounces of which we were able to collect in a tea-cup; and making allowance for what was spilt and found mixt with blood at the bottom of the skull, the whole quantity could not be estimated at less than three ounces. Water was found upon the sella turcica: and the cellular membrane surrounding the optic nerves had an anasarcous appearance.

Abdomen.—Upon opening the abdomen, the colon presented itself greatly enlarged and distended, and upon examination, was found to be in this state from the caput coli, for the whole of the ascending and transverse portions of this bowel. On the left side, immediately under the curvature, it suddenly contracted and to a degree I never saw before, being much smaller than any of the small intestines; and continued so all the way into the pelvis. In several places it appeared to have been inflamed, and upon laying it open, the villous coat was found extremely red, and covered with inspissated mucus. The small intestines seemed to have been greatly inflamed, and the ilium, at one part, was of a colour approaching to gangrene. The appendix vermiformis was five inches in length, and adhered to the posterior part of the colon.

The stomach was out of its natural situation, drawn upwards to the left side, small and contracted, especially towards its lower and great end, and upon gently pulling it, it burst near the cardia: upon laying open the stomach, an ulcer or abscess was found to have been in the part where it burst; the coats of the stomach, at this place, were all (the peritoneal excepted) entirely destroyed, nothing remaining but a greenish mucus.

Thorax.—Upon opening the thorax, the lower portion of the left lobe of the lungs, with the pleura lining the false ribs of that side, had the appearance of having been highly inflamed; and upon cutting into the substance of the lungs, purulent matter exuded in different places. Some small tubercles were likewise found in the posterior part. The pericardium and heart were not examined. The liver, spleen, and kidnies were apparently sound.

D.

Appearances on Dissection of two Cases of Hydrencephalus, reported to Dr. Carmichael Smyth, by Mr, now Sir Everard Home.

1st. A boy three years of age.

The thoracic and abdominal viscera were in a perfectly natural state. The cranium was completely ossified, and of an equal thickness in its different parts, but rather thinner than common. There was an unusual dryness on the different surfaces of the dura and pia mater, The lateral ventricles contained two ounces of water, and about an ounce more was found on the basis of the skull. The interstices between the tunica arachnoida and pia mater, where it covers the tuberculum annulare and medulla oblongata, were loaded with water, a little tinged with serum, giving a considerable thickness to these membranes at this part, and putting on the appearance of hydatids, where they surround the infundibulum.

2d. A girl between four and five years of age.

The skull was completely ossified, but not of a uniform thickness. The pia mater was not loaded with water. The only appearance of disease, was the quantity of water contained in the lateral ventricles, which was about an ounce and a half.

25*th July*, 1789, *Leicester Square.*

E.

Letter from Mr. Dundas, of Richmond, Serjeant Surgeon to His Majesty, to Dr. Carmichael Smyth, giving an Account of a Case of Hydrencephalus, with the Appearances on Dissection.

The subject was a Child five or six years of age, Daughter to the Countess de Montague, a French Emigrant.

Richmond, 13*th June,* 1792.

Dear Sir,

As you expressed a wish to have some account of the case of Madame de M.'s child, I have sent you the following general statement of it.

I saw her first on the 25th of May; she had, I was told, had two or three attacks of vomiting of bile, at the distance of three or four days; she had a return of it two days before I saw her, accompanied with violent head-ach, for which her mother had given her two doses of tartar emetic; and although that had operated freely, the head-ach and sickness still continued. I found her with a considerable degree of feverish heat, the pulse about 120, complaining much of the head, having remissions of the fever every day for some hours. I ordered her two grains of calomel at bed-time, and next morning, the pain of the head continuing, a blister was applied to the back.

All the symptoms continuing the same on the 27th, and although repeated glysters were given, no stools having been procured, a purging mixture, composed of soluble tartar and infusion of sena was given in pretty large doses every four hours, which in the morning of the 28th produced, at least, one very copious stool, with great apparent abatement of the complaint. She seemed for some hours much better; but towards the evening the head-ach, vomiting, and fever having returned, with great restlessness and great dislike of erect posture, I then apprehended the complaint to be the Hydrocephalus. Two grains more of calomel were given at bed time.

On the 29th, the pulse was found to be irregular, not perfectly intermitting, but having an irregularity in the pulsations, and from being 120, varied now from 70 to 86. Another blister was applied to the back, and two leeches were put to the temples, with an abatement of the pain, and two grains of calomel given at bed-time: no stools were now procured but by the administering of glysters.

30th. The pulse continued very irregular and low; the sickness was not so frequent, but returned at times. The pain of the head very violent, and sometimes a heaviness to sleep. Three grains of calomel were now given every six hours, and a blister was applied to the head.

31st. The symptoms nearly the same; the pupil of the eye was now more dilated than usual. The calomel was continued every six hours, and two drachms of mercurial ointment were rubbed into the legs in the morning, and the same quantity into the thighs at night.

June 1st. A dead worm, one of the lumbrici, was passed by stool. All the symptoms continued the same.

2d. Another blister was applied to the head, and a purging draught, with gamboge, was given; it produced vomiting; was repeated, and occasioned one stool next day.

3d. The pulse was now more irregular: very little urine was made, and no stool, but by glyster. The powder of squill was given once in eight hours.*

4th. A grain of calomel was added to each of the squill powders. A caustic was applied on the sagittal suture, and a purging glyster at night. The caustic did its office well, but the patient complained very little of it. The pain of the head, at times, very violent; as yet she retained her senses perfectly; did not complain of light being disagreeable to her eyes.

5th. She was now more disposed to sleep, had frequent twitchings in the limbs. Two blisters were applied to the thighs. From this time, till she died, she became gradually more insensible; convulsions attacked frequently; she passed her urine insensibly; she became very hot, and the pulse was so quick and irregular, that it could not at last be counted, and she died about noon, on the 11th of June.

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* Dr. Carmichael Smyth saw her on this day.

The pupils of the eyes, for the last four days, were dilated to the utmost they possibly could be.

Dissection by the same.

The dissection throws no new light on the disease. About four ounces and a half of water were found in the ventricles of the brain, and about two tea spoonfuls in the ventricles of the cerebellum; no other appearances of disease were perceived in the brain.

The vessels of the plexus choraoidis did not seem so distinct as they frequently are, certainly did not exhibit any appearance of inflammation.

The pericardium did not contain more water than it ought to do; the lungs were perfectly sound. All the abdominal viscera were in a healthy state; and, although the stomach and intestines were carefully examined, not one worm was found.

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F.

Extract of a Letter from the same, bearing date July 9, 1793, *giving an account of the Appearances on Dissection in a Case of Hydrencephalus.---The subject a Boy between eight and nine years of age.*

Mr. (now Sir James) Earl assisted at the dissection of the late Master H. Every thing justified the opinion you had formed respecting the cause of the complaint. The cranium under the caustic was particularly examined; it exhibited no unusual appearance, neither did the dura mater immediately under it. The vessels of the pia mater seemed more distended with blood than common. There was an evident fluctuation to be felt in the brain before an incision was made into it. Between five and six ounces of water was found in the ventricles, without any other unusual appearance. All the viscera of the thorax and abdomen were perfectly sound.

G.

Appearances of the Head and Brain on dissecting the body of a Boy six years old, who died of the Hydrencephalus, taken down by Dr. C. Smyth at the time.

The head was well formed, and the bones of the head compleatly ossified; on removing the scalp the caustic was found to have penetrated the integuments, and to have affected the pericranium, and even the bone.

There was an appearance of puffiness and redness on the pericranium of the occiput, near the part affected by the caustic, and a moisture oozed out on handling it. The veins of the dura mater were greatly distended, and upon removing that membrane, the veins of the pia mater, and between the convolutions of the brain, had a similar appearance of distention. The dura mater was found adhering to the pia mater immediately under the caustic, (*i. e.*) at the vertex, and in several other places. Although the hemispheres were separated, and the upper portions of them removed with the greatest care, yet the ventricles were so thin that they burst during the operation, and about three ounces of a transparent colourless fluid, as usual, was evacuated; the ventricles however had an appearance, especially the left, of having been still more distended.

H.

Dr. Carmichael Smyth's Answer to the Case of Master Hartopp, sent to him from Birmingham.

The case of Master Hartopp appears to be the unhappy one of Dropsy of the Brain. Although to form a decided opinion on the subject would require a farther knowledge of the symptoms and progress of the disease, than can be collected from the description given by the father of the child.

The irregular fever, drowsiness, dilatation of the pupils of the eyes, aversion to food and motion, though strong symptoms of the disease, are not sufficiently conclusive of themselves: on the other hand, that the bowels of the child should be so readily affected by castor oil, or even by calomel, is not usual in this complaint. But I have much reliance on the judgment of Dr. Withering, and the other physicians attending, who, I doubt not, have considered with accuracy all the circumstances of the case.

In respect to the treatment of this disease, supposing it such, I have for some years past laid aside the common practice of rubbing in mercury, or of giving it in very large doses, for the purpose of exciting salivation, having never been fortunate enough to succeed in that way;

whereas I have twice met with success by pursuing a different plan.

I give the quick-silver, killed by rubbing it down either with confectio aromatica or manna, in a dose from five to ten grains every six or eight hours, combining it with the fresh or prepared squill, to determine, if possible, its operation to the kidnies; and, with this intention, I give also, at intermediate times, a saline mixture, with the spirit: æther: nitrosi; adding to this some nutmeg-water, or any other cordial, when the patient is low, and the heat of the body inconsiderable.

I likewise endeavour to purge the child every second or third day with gamboge, from five to ten grains, or with resin of scammony and calomel. I put a blister, and when that does not rise, as frequently happens, I apply a caustic immediately above the fontenelle, and endeavour to procure a discharge from the eschar; and twice or thrice a day I have the head fomented with any spirituous fomentation, applied with flannel cloths as hot as they can bear it.

When the febrile symptoms and heat of the body are considerable, I confine the sick to chicken broth, chicken panada, and glysters of the same, with occasionally a little white wine whey; but when the sick are low, or the disease more advanced, or in the second stage, I give them either pure wine, or warmed with spices, from time to time, and strong beef tea, warmed with mace and allspice.

I.

Extract of a Letter from Dr. Withering, respecting the above Case.

I should have taken an earlier opportunity of thanking you for your book, but waited until I could have it in my power to apprize you of the event of a case which was submitted to your consideration in October last. You will be glad to hear that Master Hartopp is perfectly recovered.

The disease was strongly marked, and resisted obstinately. Every eight hours, as much strong mercurial ointment was rubbed upon the legs as could be rubbed in, and the whole of the head, both the blistered and unblistered parts, kept constantly covered with the same. The inward exhibition of mercury was attempted, but it purged, and he was evidently worse, and endangered by extraordinary stools, at the period when the pulse became very rapid, and when I expected the effusion fully to have superseded the congestion. He took the digitalis,* so as to diminish the frequency of the pulse, and when that happened, tincture of cantharides was substituted in its stead.

I should have mentioned, that during the state of congestion, he was repeatedly bled on the head, both by leeches and cupping.

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[*] The preceding seems to have been a very singular case of Hydrencephalus, in which the irritability of the bowels and continued frequency of the pulse warranted a trial of the foxglove. But though I have often experienced the efficacy of this medicine in the Hydrothorax, I have never met with a case of Hydencephalus that appeared to me to justify the exhibition of this remedy, whose debilitating power on the system, and particularly on the action of the heart, is so generally known.

Though a delicate child, and of an irritable habit, the great quantity of mercury rubbed in, never affected his mouth, either during the disease, or after it.

Edgbaston, Feb. 10, 1796.

L.

EXTRACTS FROM MORGAGNI.

De Sedibus et Causis Morborum.

a. Esse autem ex naturæ instituto tenuem in ventriculis aquam, et limpidam, sed vix plus quam ut ea ventriculi madeant, negandum non credo.—Epist. xii. 3.

b. Est autem in cavis omnibus fœtuum, et recens natorum animalium, aquæ plus quam in adultis.—Id. ead.

c. Ostendit autem Prussius tum illa, tum aliis duabus observationibus *quo latere aut omnino, aut præcipue caput doluit, ejus lateris ventriculum aut solum, aut longe magis aqua fuisse distentum,** eaque interdum limpidissima, nec minus tamen noxia, quam subflava. Nam vel maxime limpida occulere potest quæ stimulent—Id. i. 4.

d. Neque enim quod limpidum fuerit serum idcirco innoxium censeamus necesse est: quando constat, sales, qui maxime possint erodere, in aqua solutos, hujus pelluciditati nihil officere.—Id. i. 3.

M.

Extracts from the same Author respecting the Hardness of the Brain in Lunatics.

a. Nunc etiam præstat quam mihi in maniacorum et melancholicorum cerebro, semper obviam fuisse dixi; singularem duritiem sex septemve prolatis dissectionibus confirmare.—Epist. viii. 3.

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* Does not this fact afford a convincing proof that pain and irritation are the immediate effect of distention of the ventricles?

b. Cæterum nihil magis adnotatione dignum occurrit, quam cerebri durities. Sive enim medullarem hujus substantiam, sive corticalem incideres, non modice duras percipiebas, quando cerebelli substantia saltem corticalis vel magis, quam solet, mollis erat.—Id. ead. 4.

c. Quod ad caput attinet; quamvis aquam sub tenui meninge effusam invenerim; tamen ea firmitudine cerebrum fuit; ut durius ad id tempus a me dissectum esse, non meminissem.—Id. ead. 6.

d. Nihil in iis angustiis temporis, nisi cerebrum, dissecandum suscepi. Quod non secus ac paulo ante in Lanio, prædurum inventum est.—Id. ead. 8: et passim.

N.

When I mentioned the opinion of Dr. Fothergill, that the Hydrencephalus was probably occasioned by the rupture of a lymphatic vessel in the ventricles, I stated my objections to this under three different heads.

1st. That there was no lymphatics, as yet found for certain within the brain.

2dly. That there was no instance of the rupture of a lymphatic vessel in those parts of the body where they are known to exist.

3dly. That the lymph was coagulable by the heat of boiling water and the admixture of mineral acids; which was not the case with the water found in the ventricles.

For the first fact, I had the authority of Haller.*

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* Vide note O.

For the second, my own observation, having never heard of such an accident.

The third, I stated on the report of some experiments made by a physician of eminence, read at the College of Physicians many years ago. These experiments, however, have been contradicted by the late trials of Mr. Brande on this subject. Every one must be sensible, that all such experiments are liable to great uncertainty, owing to the difficulty of procuring a sufficient quantity of lymph, free from any admixture of chyle or serum, to be the subject of examination. But, putting my objection on this head entirely out of the question, the two first are, in my opinion, of themselves sufficient to invalidate a supposition entirely gratuitous.

O.

Extracts from Haller's Elementa Physiologiæ.

a. Lymphaticorum vasorum in cerebri equidem interiori regione positorum, nonnulla passim vestigia reperiuntur. And again, after mentioning some observations of others, he adds:—Verum dudum de his per cerebrum lymphaticis vasis, dubia moverunt viri insignis his in rebus auctoritatis, &c. Neque unquam aliquid simile vidi, et obest, quod nullæ intra cranii caveam glandulæ lymphaticæ reperiantur, quales a ductibus aquosis non longe abesse solent.—Vid. tom. i. p. 176 et 177.

b. Et cum nusquam in corpore humano, longe absque glandulis conglobatis, lymphatica vasa decurrant, neque pro rei dignitate et facilitate satis hactenus sit testimoniarum, liceat interim de iis interni capitis vasis aquosis ampliasse, dum pleniora experimenta suppetant. Addi possit videri omnino lympham cerebri per venas rubras ad cor revehi.—Vid. id. tom. iv. p. 184.

P.

Dr. Monro, Senr. of Edinburgh, whose character as a physician and anatomist, stands too high to acquire any addition from my praise; in a work, which he published in the year 1797, mentions two and twenty cases of Hydrencephalus, in which he had unsuccessfully employed mercury, and was then led, from the same analogy with myself, to recommend the combining this medicine with squills or foxglove, to determine its operation to the kidneys. I adopted this practice for the first time in the year 1785, and the two cases where I employed it with success, occurred in the years 1785 and 1787. But as I published no account of these at the time, he could not have taken the idea from me; and it is equally apparent from the dates, that I could not have taken any hint from what was published eleven years afterwards. But, that two physicians, without any communication with each other, should have been led, from the same observations, derived from experience, to employ a similar practice, gives it at least some claim to a farther trial.

FINIS.

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